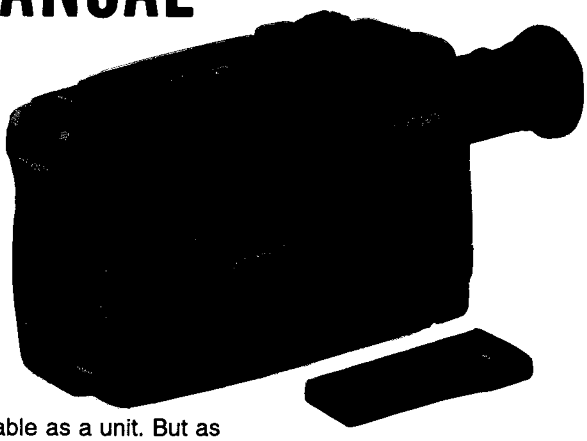
CCD-TR805E

RMT-508

SERVICE MANUAL



Remote commander is available as a unit. But as individual parts the battery case lid of commander is only avaiable.

AEP Model
UK Model
E Model
Australian Model
Tourist Model

Video 8
Handycam

FL MECHANISM

For MECHANISM ADJUSTMENTS, refer to the "8 mm Video MECHANICAL ADJUSTMENT MANUAL II " (9-972-705-11).

SPECIFICATIONS

System

Video recording system	Four Rotary heads, Helical scanning FM system
Audio recording system	Four Rotary heads, Helical scanning FM system
Video signal	PAL colour, CCIR standards (Hi8 or Standard 8 mm)
Usable cassette	8 mm video format cassette
Tape speed	SP mode: Approx. 2.0051 cm (13/16 in)/sec. LP mode: Approx. 1.0058 cm (13/32 in)/sec.
Recording time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Playback time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Fast-forward/rewind time	Approx. 8 min. (E5/P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (black and white)
Lens	Combined 10 x power zoom lens f = 6.2 — 62.4 mm (1/4 to 2 1/2 inches), 45 to 450 mm (1 13/16 to 17 3/4 inches) when converted into a 35-mm still camera F = 1.6 — 2.9 52 mm (2 1/8 inches)
Auto focus system	TTL autofocus system inner focus wide macro system
Colour temperature	Automatic, HOLD, 💡(indoor) 3,200 K ☀(outdoor) 5,800 K
Minimum illumination	3 lx (F 1.6)
Illumination range	3 lx — 100,000 lx
Recommended illumination	More than 100 lx
Aperture correction	Automatic

Input and output connector

S video input/output (AEP/UK model: Output only)	4-pin mini-DIN Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.3 Vp-p 75 ohms, unbalanced

V361

— Continued on next page —

MICROFILM

8 VIDEO CAMERA RECORDER

SONY®

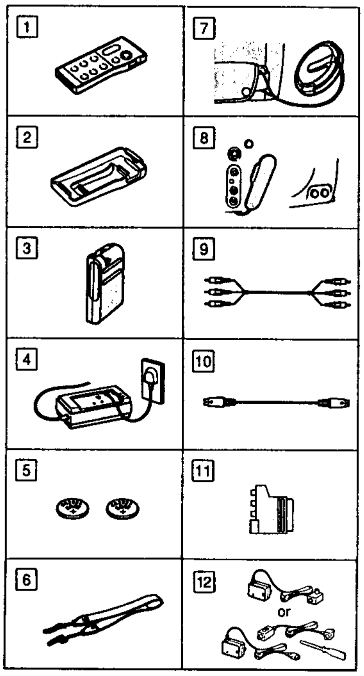
Video input/output (AEP/UK model: Output only)	
	Phono jack, 1 Vp-p, 75 ohms unbalanced sync negative
Audio input/output (AEP/UK model: Output only)	
	Phono jacks Input: –7.5 dBs, input impedance more than 47 kilohms Output: –7.5 dBs, (at output impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT	Special minijack, DC 5 V
Headphones jack	
	Stereo minijack
Remote jack	Stereo mini-mini-jack
MIC jack	Stereo minijack, –66 dBs, low impedance with 2.5 — 3 V DC output, impedance 6.8 kilohms

General

Power requirements	
	On battery mounting surface 6.0 V (battery pack) 7.5 V (AC power adaptor) 9.0 V (alkaline batteries)
Power consumption	
	6.4 W (camera recording) including the viewfinder
Installation	Vertically, Horizontally
Operating temperature	
	0°C to 40°C (32°F to 104°F)
Storage temperature	
	–20°C to +60°C (–4°F to +140°F)
Dimensions	Approx. 109 x 106 x 189 mm (w/h/d) (4 3/8 x 4 1/4 x 7 1/2)
Weight	Approx. 860 g (1 lb 14 oz) excluding the battery pack, lithium battery, cassette, lens cap, jack cover, and shoulder strap Approx. 1100 g (2 lb 6 oz) including the battery pack NP-55H, lithium battery CR2025, cassette E5-90, lens cap, jack cover, and shoulder strap
Microphone	Electret condenser microphone, stereo type

Checking Supplied Accessories

(A)



(*: Attached to the camcorder)

(A)

- 1 **Wireless Remote Commander** (1) (page 7)
- 2 **Remote Commander holder** (1) (page 7)
- 3 **Battery pack (NP-55H)** (1) (page 10)
- 4 **AC power adaptor AC-V30** (1) (page 12)
- 5 **Lithium batteries CR2025** (2) (for camcorder/for the Remote Commander) (page 8)
- 6 **Shoulder strap** (1) (page 7)
- 7 **Lens cap*** (1) (page 18—19)
- 8 **Jack cover*** (1)
- 9 **A/V connecting cable** (1) (page 35)
- 10 **S video connecting cable** (1) (page 35)
- 11 **21-pin adaptor** (1) (page 35, 37) (AEP/UK model)
- 12 **RFU adaptor**
  RFU-90AS (1) (Australian model)
  RFU-89EA (1) (E, Tourist model)
  (with the RFU-89EA, an aerial selector and a screw driver are supplied.)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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There is the color reproduction standard frame at the back of the book.

SERVICE NOTE

[SEMICONDUCTOR FOR CORRECTION LIST DISPLAY]

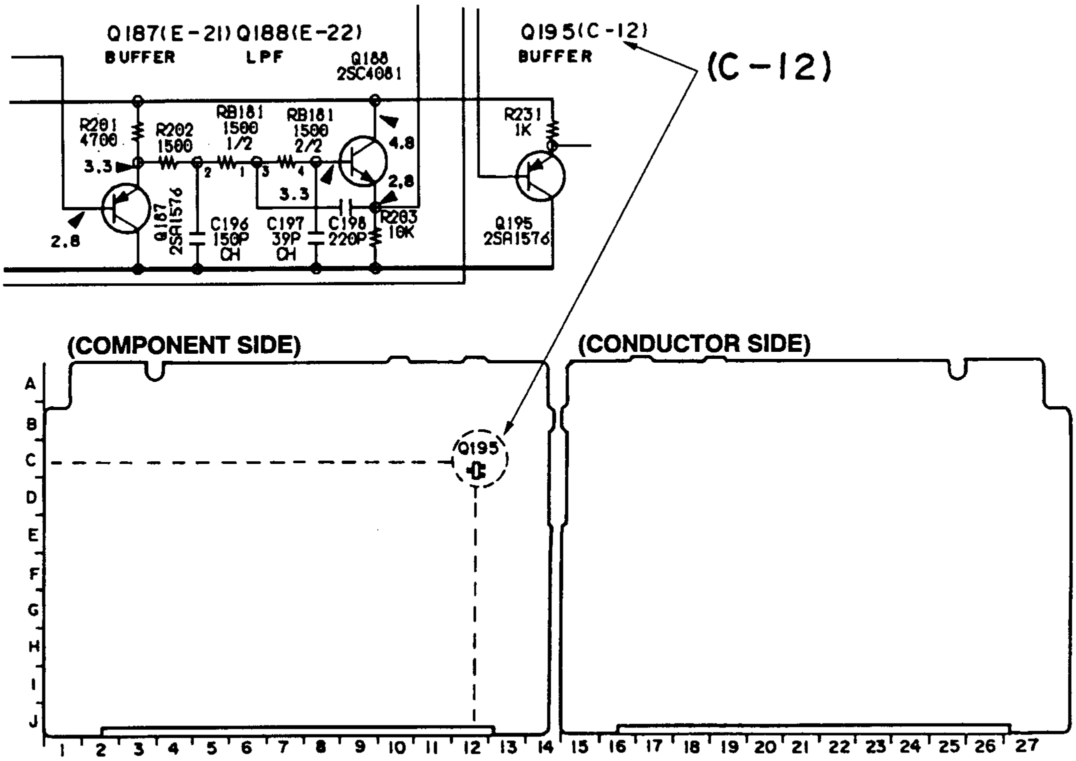
Part code and part name of the semiconductor for correction of the print board is discribed in the space of each print figure. Use this list when ordering parts.

[PARTS LOCATION DIAGRAM RELATED TO POWER SUPPLY]

The parts location diagram for the power supply which are often checked and replaced when repairing the fuse and IC link and so on. (See pages 93, 106, 121, 138.)
This diagram is useful for repair.

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red as shown below. This enables to find the location on the board easily when servicing.



Q187(E-21) Q188(E-22)
BUFFER
LPF
Q188
2SC4081
Q195(C-12)
BUFFER
(C-12)
R201
4700
R202
1500
RB181
1500
1/2
RB181
1500
2/2
3.3
4.8
2.8
3.3
2.8
Q187
2SA1576
C196
150P
CH
C197
39P
CH
C198
220P
R203
10K
R231
1K
Q195
2SA1576
(COMPONENT SIDE)
(CONDUCTOR SIDE)
Q195
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[HEAD CLEANING]

After an extended period of use the video image may become indistinct or may not appear at all during playback of a tape. The cause of this usually are dirty video heads. For remedy, cleaning of the heads is required.

Check for Head Clogs During Recording

① Use a blank tape, record a short section, then press the stop button to stop.
② Set to recording mode again.
③ If the [✲] mark is flashing in the viewfinder at this time, head clogs are occurred.

Check During Playback of a Tape

① Play back a pre-recorded tape and display the image on a TV screen.
② If there is no sound and the image is unstable, no image appears on the screen, or tape transport is unstable, head clogs are occurred.

Remedy

[Cleaning method using a cleaning tape]

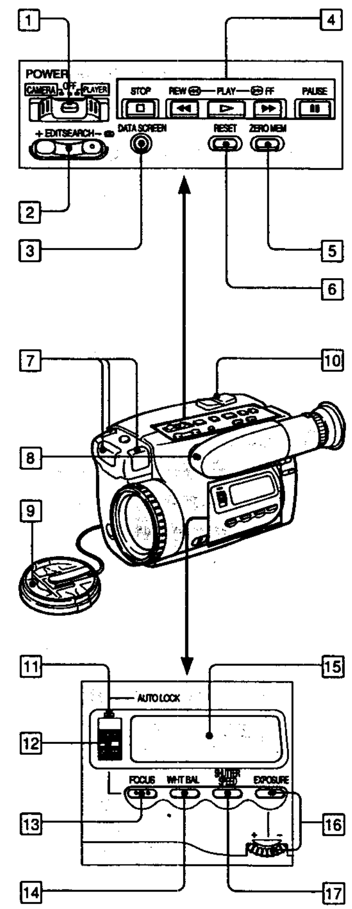
- Use the Cleaning Tape. (Please follow the instructions attached to the cleaning tape.)

SECTION 1
GENERAL

This section is extracted from instruction manual of AEP/UK model.

Identifying the Parts

(B-1)

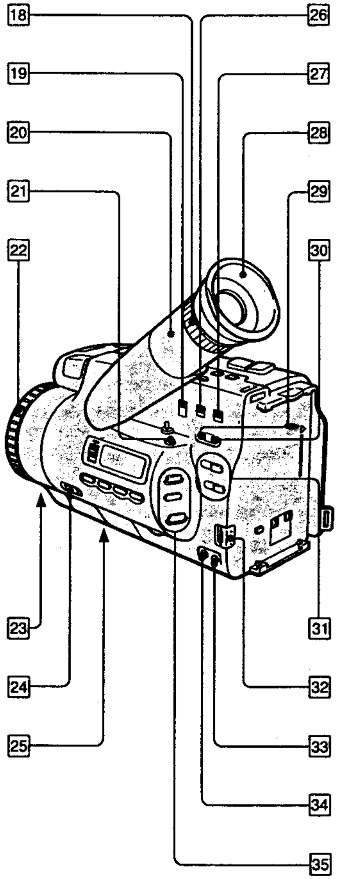

1
4
POWER
CAMERA
OFF
PLAYER
STOP
REW
PLAY
FF
PAUSE
+ EDITSEARCH –
DATA SCREEN
RESET
ZERO MEM
2
3
5
6
7
10
8
9
11
AUTO LOCK
15
12
FOCUS
WHT BAL
SHUTTER SPEED
EXPOSURE
+
–
13
16
14
17

For details on the use of each part, refer to the pages indicated in parentheses.

(B-1)

- 1 **POWER switch** (15), (18), (38)
- 2 **EDITSEARCH button** (22), (41)
- 3 **DATA SCREEN button** (38)
- 4 **Tape transport buttons** (38)
  - ▷ PLAY (playback)
  - ▶▶ FF (fast forward)
  - ◀◀ REW (rewind)
  - □ STOP
  - ❚❚ PAUSE
- 5 **ZERO MEM (zero memory) button** (23)
- 6 **RESET button** (23)
- 7 **Built-in Microphone (stereo/zoom)** (20)
- 8 **Recording/battery lamp** (13), (18)
- 9 **Lens cap** (18), (19)
- 10 **Power zoom button** (20)
- 11 **AUTO LOCK lamp** (18), (24)
- 12 **AUTO LOCK switch** (18), (24)
- 13 **FOCUS button** (25)
- 14 **WHT BAL (white balance) button** (26)
- 15 **Display window** (48), (51)
- 16 **EXPOSURE button and dial** (28)
- 17 **SHUTTER SPEED button** (27)

(B-2)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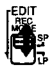
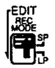
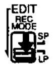
35

Identifying the Parts

(B-2)

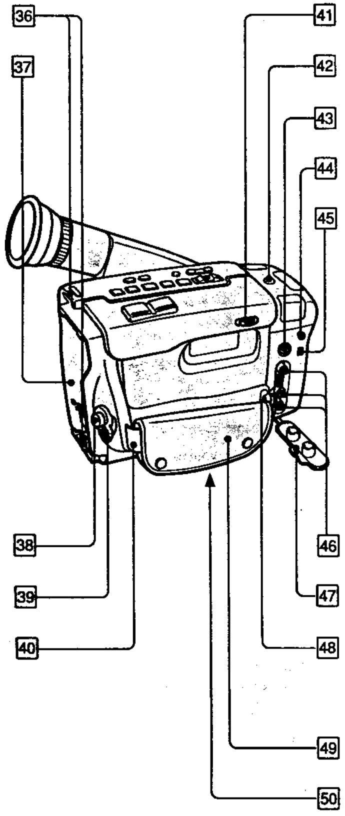
- 18 **Viewfinder lens adjustment ring** (17)
- 19 **HI-FI SOUND switch** (39)
- 20 **Viewfinder** (17)
- 21 **REC START/STOP button** (19)
- 22 **Focus ring** (25)
- 23 **FADER button** (29)
- 24 **STEADY SHOT switch** (21)
- 25 **Lithium battery compartment** (8)
- 26 **Recording mode/EDIT switch** (41)

Mode	Recording	Playback	Editing
Setting	 EDIT REC MODE SP LP	 EDIT REC MODE SP LP	 EDIT REC MODE SP LP
Function	Recording mode switch	EDIT switch	

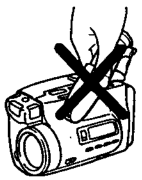
- 27 **Hi8 AUTO/OFF switch** (18), (42)
- 28 **Eyecup** (17)
- 29 **SUMMER TIME button** (15), (30)
- 30 **AREA button** (30)
- 31 **DATE and TIME buttons** (15), (30), (39)
- 32 **BATT (battery eject) knob** (11)
- 33 **PHONES (headphones) jack (stereo mini jack)** (22)
- 34 **Ⓛ REMOTE control jack (mini-mini-jack)**
- 35 **SUPERIMPOSE buttons** (32)—(34)
  - **MEMORY button**
  - **COLOR/MODE button**
  - **SUPERIMPOSE ON/OFF button**

About Ⓛ (LANC)
Ⓛ stands for Local Application Control Bus System. The Ⓛ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the connectors indicated as CONTROL L or REMOTE.

(B-3)



(B-4)

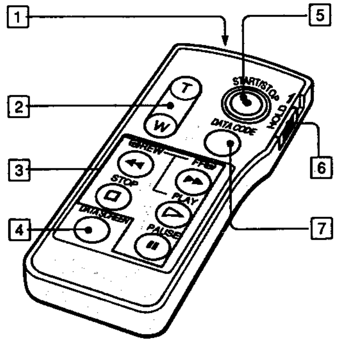


(B-3)

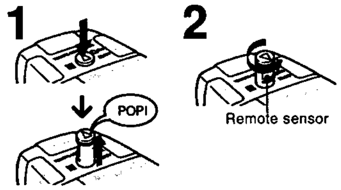
- 36 **Hooks for shoulder strap**
- 37 **Battery mounting surface** (14)
- 38 **START/STOP button** (19)
- 39 **STANDBY switch** (18)
- 40 **Grip strap** (18)
- 41 **Lid lock** (16)
- 42 **Remote Control Sensor** (7)
- 43 **S VIDEO jack** (35)
- 44 **MIC jack (PLUG IN POWER) (stereo mini jack)**
  Connect an external stereo microphone (not supplied).
- 45 **BUILT-IN MIC switch** (20)
- 46 **VIDEO/AUDIO output jacks (phono jacks)** (35)
- 47 **Jack cover**
- 48 **RFU DC OUT (DC output) jack** (36)
- 49 **Grip strap cover** (18)
- 50 **Tripod receptacle** (43)

Caution (B-4)
Do not pick up the camcorder as shown in the illustration.

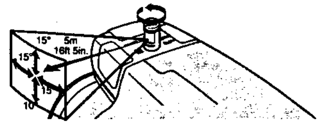
(B-5)



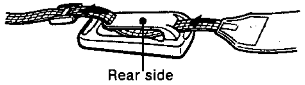
(B-6)



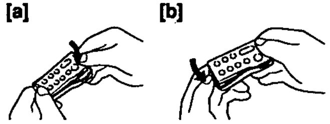
(B-7)



(B-8)



(B-9)



Wireless Remote Commander

You can remotely record or play back a tape.

(B-5)

- 1 **Transmitter**
- 2 **Power zoom button** (20)
- 3 **Tape transport buttons** (38)
- 4 **DATA SCREEN button** (38)
- 5 **START/STOP button** (19)
- 6 **HOLD switch (Remote commander only)**
  Slide in the direction of the arrow to prevent the buttons from being accidentally pressed.
- 7 **DATA CODE buttons** (39)

When you use the Remote Commander
Be sure to insert the supplied lithium battery into it (page 9) and turn on the POWER switch on the camcorder.

(B-6)

1 **Push the head of the remote sensor on the camcorder lightly.**
The remote sensor pops up.

2 **Aim the remote sensor in the direction you want to control the camcorder.**

Remotely controllable area (B-7)
Point the Remote Commander towards the remote sensor.

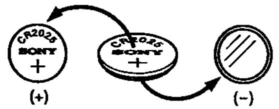
Notes on the Remote Commander

- **Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise the Remote control may not be effective.**
- Be sure that there is no obstacle between the remote sensor and the Remote Commander.
- This camcorder works through the signals of commander mode VTR 2. A commander mode is used to distinguish this camcorder from other Sony VTR to avoid misoperation. If you use another Sony VTR at commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VTR with black paper.

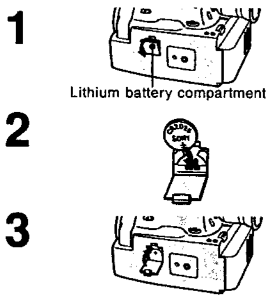
Using the Remote Commander holder
You can clip the Remote Commander holder on your coat pocket or belt, or slide it onto a shoulder belt before attaching the Remote Commander to it. **(B-8)**

(B-9)
[a] When attaching the Remote Commander to the Remote Commander holder
[b] When detaching the Remote Commander from the Remote Commander holder

(C-1)



(C-2)



Preparing your camcorder 1

Inserting the Lithium Batteries

Your camcorder is supplied with two lithium batteries. One is for the camcorder, and the other is for the Remote Commander. Note that the lithium battery has a + (plus) and a – (minus) side as illustrated. **(C-1) Be sure to install the lithium battery with the correct polarity.**

Inserting the Lithium Battery into the Camcorder

To keep a title in the camcorder's memory, as well as to activate the clock, you must insert a lithium battery. Make sure you use one of the supplied lithium batteries.

(C-2)

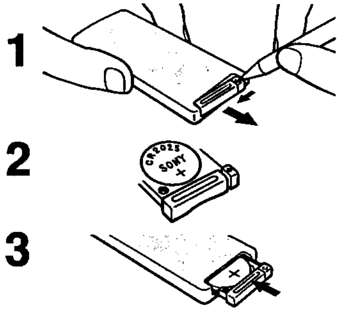
1 **Open the lid of the lithium battery compartment located on the bottom of the camcorder.**

2 **Install one of the supplied batteries with the + (plus) side facing up.**

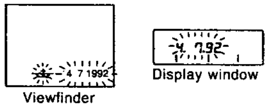
3 **Close the lid.**

To change the lithium battery
Open the lid of the lithium battery compartment at the bottom of the camcorder, pull out the lithium battery, and insert a new one.
While changing the battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and title.

(C-3)



(C-4)



Inserting the Lithium Battery into the Remote Commander

(C-3)

1 **Pull out the lithium battery holder from the Commander.**

2 **Install the lithium battery with the + side facing upward.**

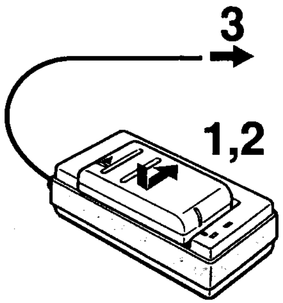
3 **Put the lithium battery holder back into the Commander.**

To change the lithium battery
Pull out the lithium battery holder, and insert a new one.

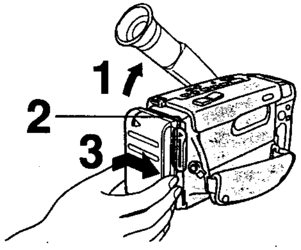
Lithium battery life
The battery for the camcorder lasts for about 1 year. When the lithium battery becomes weak or dead, the date or time indicator keeps flashing in the display window and the ⏚ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. **(C-4)** The battery for the Remote Commander lasts for about 6 months. When the battery becomes weak or dead, the Commander does not work. In either case, **change the battery with a Sony CR2025 lithium battery. Use of any other battery may be present a risk of fire or explosion.**

Cautions
- Keep the lithium battery out of the reach of children. Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to assure a good contact.
- The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

(D-1)



(D-2)



Preparing your camcorder 2

Connecting the Power Sources

First, Choose the Power Source

Place	Power Source	Accessory to be used
Outdoors	Battery pack	Battery pack NP-55H (supplied), NP-55, NP-66H, NP-77, NP-77H, NP-77HD
	Alkaline batteries	Battery case EBP-77
Indoors	House current	AC power adaptor AC-V30 (supplied), AC-V55, AC-S10
In the car	12V or 24V car battery	DC pack DCP-77, AC power adaptor AC-V55 and the car battery cord DCC-16AE, DC-S10

For details, see the operation manual of the accessory you want to use.

Using the Battery Pack

Step 1

Charge the battery pack. **(D-1)**

1 **Align the right side of the battery pack with the line on the AC power adaptor.**

2 **Slide in the battery pack to the right.**

3 **Connect the AC power adaptor to a wall outlet.**

	NP-55H	NP-77H/ 77HD	NP-77	NP-66H	NP-55
Required charging time*	70	140	120	110	60
Battery life**	60	130	110	80	50

* Approx. minutes using AC-V30

** Approx. minutes of continuous recording when used indoors

Step 2

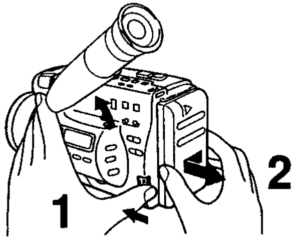
Mount the battery pack on the camcorder. **(D-2)**

1 **Lift up the viewfinder.**

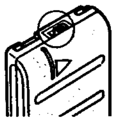
2 **Align the right side of the battery pack with the white line on the camcorder.**

3 **Slide the battery pack to the right.**

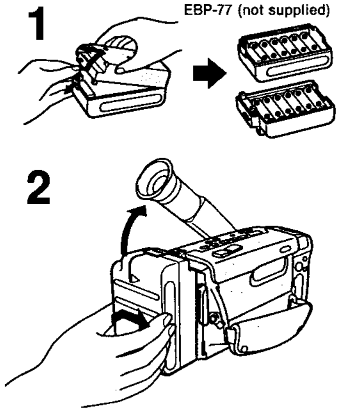
(D-3)



(D-4)



(D-5)



To remove the battery pack (D-3)
While pressing the BATT knob in the direction of the arrow, slide the battery pack to the left and pull it out as illustrated.

The switch on the battery pack (D-4)
This switch is provided so that you can remember the charging condition. Set the switch to the "no mark" position when charging is completed. Set the switch to the "red mark" position when the battery is dead.

Other options for charging

- AC-S10 AC power adaptor, DC-S10 car battery charger:
  These adaptors have a discharging function. When you want charging only, slide the skip switch on the adaptor in the direction of the arrow.
- AC-V55 AC power adaptor:
  You can charge two battery packs.
- BC-55 portable battery charger:
  You can charge a battery pack on 100 — 240 V AC.

Using Alkaline Batteries

(D-5)

1 **Insert 12 R6 (AA) size alkaline batteries into the battery case.**

2 **Attach the case in the same way as the battery pack.**

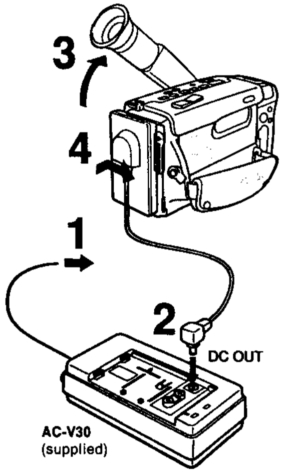
Battery life (when using Sony alkaline batteries)
The batteries last for about 2 hours and 10 minutes under continuous recording indoors. However, when you use non-Sony alkaline batteries, their life may be shorter.

Notes on battery life

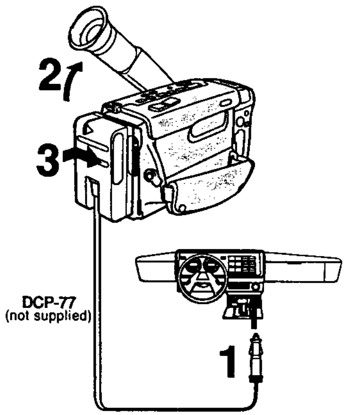
- Batteries will not last as long in cold places.
- No indicator appears in the viewfinder when the batteries are weak.

To remove the battery case
Remove it the same way you do the battery pack. See above.

(D-6)



(D-7)



Using House Current

(D-6)

1 **Connect the AC power adaptor to a wall outlet.**

2 **Insert the connecting cord supplied with the AC-V30 AC power adaptor into the DC OUT jack on the AC power adaptor.**

3 **Lift up the viewfinder.**

4 **Align the right side of the connecting plate with the white line on the camcorder, and slide it to the right.**

To remove the connecting plate
Remove it the same way you do the battery pack. See page 11.

Using the Car Battery

(D-7)

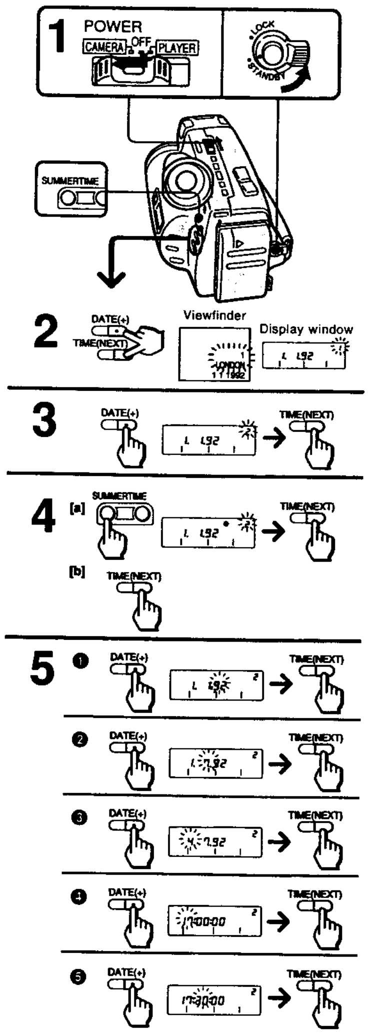
1 **Connect the cord to the cigarette lighter socket of a car (12 V or 24 V).**

2 **Lift up the viewfinder.**

3 **Align the right side of the DC pack with the white line on the camcorder, and slide it to the right.**

To remove the DC pack
Remove it in the same way as you do with the battery pack. See page 11.

(F-1)



Preparing your camcorder 3

Setting the Date and Time

(F-1)

Make sure that a power source (page 10) and lithium battery are installed (page 8).

1 **While pressing the green button, set the POWER switch to CAMERA, and turn STANDBY up.**

2 **Press DATE (+) and TIME (NEXT) simultaneously for more than 2 seconds until "1 LONDON" flashes in the viewfinder.**
DATE (+) now functions as + (to advance numbers) and TIME (NEXT) functions as NEXT (to execute).

3 **Press DATE (+) until your area name and number appears and then press TIME (NEXT).**

Countries	Area name	Area number
the United Kingdom and Portugal (GMT)	LONDON	1
other European countries (CET)	PARIS	2
Finland, Greece, etc.	CAIRO	3

4 **Choose one of the following options to set the clock:**
(a) **For summer time, press SUMMER TIME. Then press TIME (NEXT).**
The ✱ indicator appears in the viewfinder and the display window.
(b) **For standard time, press TIME (NEXT).**

5 **Set the year*, month, day, hour and minute, in this order. Then press TIME (NEXT) to set the second.**
First adjust the flashing digits with DATE (+) and then press TIME (NEXT). The clock starts operating.

* To set the year to 1992, no need to press DATE (+) in step 5—❶

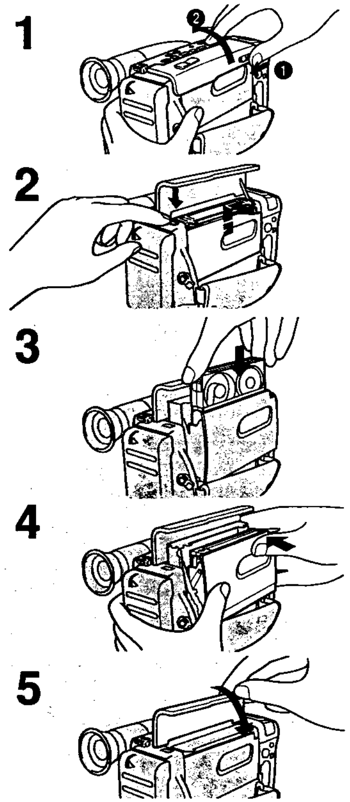
To correct the date and time setting
Press TIME (NEXT) repeatedly until the minute digits stop flashing. Then repeat steps 2 to 5.

To advance the digits faster
Keep DATE (+) pressed.

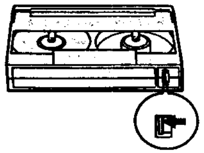
To check the preset date and time
Press DATE (+) or TIME (NEXT). When you press the same button again, the indicator goes off.

To reset standard time
Press SUMMER TIME. The ✱ indicator goes off.

(G-1)



(G-2)



Preparing your camcorder 4

Inserting a Cassette

Inserting a Cassette

(G-1)

Make sure that a power source is connected.

1 **While sliding the lid lock in the direction of the arrow (❶), lift up the lid (❷).**

2 **Press EJECT.**
The cassette compartment automatically lifts up and opens.

3 **Insert a cassette with the window facing out.**

4 **Press the PUSH mark on the cassette compartment cover to close it.**
The cassette compartment will go down automatically.

5 **Close the lid.**

Ejecting the Cassette

Make sure that a power source is connected.

1 **While sliding the lid lock in the direction of the arrow, lift the lid up until it clicks.**

2 **Press EJECT.**

3 **Take out the cassette and press the PUSH mark on the compartment to close it.**

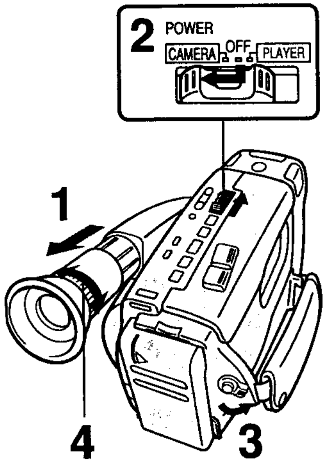
4 **Close the lid.**

Preventing Accidental Erasure

(G-2)

Slide the tab on the cassette to expose the red mark. This will prevent accidental recording. If you try to record with the red mark exposed, the 📼 and ⏏ indicators flash in the viewfinder.
To re-record on this tape, slide the tab back out to cover the red mark.

(H)



Preparing your camcorder 5

Adjusting the Viewfinder Lens

Before you use the camcorder for the first time (or after someone else has used it), adjust the viewfinder lens to best fit your eyesight. Make sure that the power source is attached to the camcorder, and a cassette is inserted.

If you wear glasses
You can bend back the eyecup to get a better view of the viewfinder.

(H)

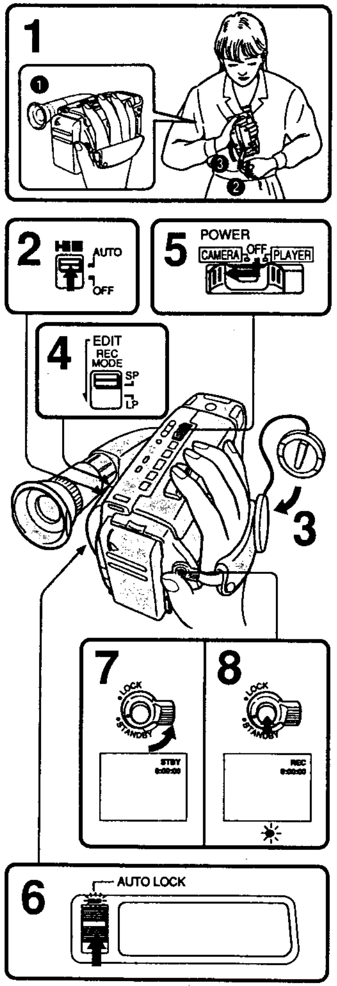
1 **Pull the viewfinder out until it clicks.**

2 **While pressing the green button, set the POWER switch to CAMERA.**

3 **Turn STANDBY up.**

4 **Turn the viewfinder lens adjustment ring so that "STBY" displayed in the viewfinder comes into sharp focus.**

(I-1)



Recording a Picture Using Automatic Adjustments

Before recording "once-only" events, we strongly recommend you make a trial recording and check that everything is working properly.

(I-1)

Make sure that the viewfinder is pulled out and the power source is attached.

Start Recording

1 **Hold the camcorder as illustrated.**

2 **Slide the Hi8 AUTO/OFF switch to AUTO.**
For details, see page 42.

3 **Remove the lens cap and clip it on the grip strap.**

4 **Set the Recording mode/EDIT switch to LP (long play) or SP (standard play), according to the length of your planned recording.**

5 **While pressing the green button, set the POWER switch to CAMERA.**

6 **Slide the AUTO LOCK switch up to turn on the AUTO LOCK (green) lamp.**

7 **Turn STANDBY up.**
"STBY" appears in the viewfinder.

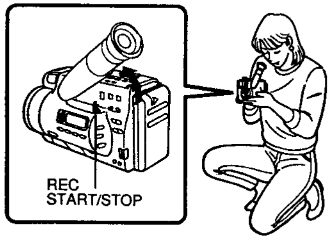
8 **Press START/STOP.**
"REC" appears and the red lamp lights up in the viewfinder. The camcorder is now recording.

Recording mode
You can record and play back a picture on a tape in both SP (standard play) and LP (long play) modes.
However, the quality of the playback picture in the LP will not be as good as that in the SP mode.

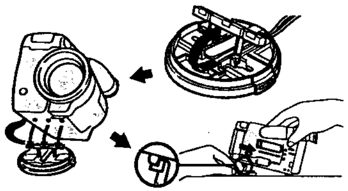
To stand-by (to stop momentarily)
Press START/STOP again.
"STBY" appears in the viewfinder.

To stop
Turn STANDBY down and set the POWER switch to OFF.

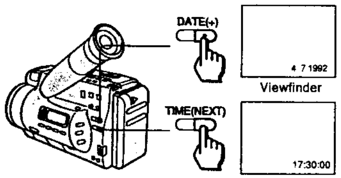
(I-2)



(I-3)



(I-4)



Recording a Picture Using Automatic Adjustments

For low-position recording (I-2)
When the viewfinder is pushed down, you can monitor the picture without being close to the viewfinder.

1 Adjust the viewfinder barrel. (You can turn it up to 90 degrees.)

2 Turn STANDBY up.

3 Press REC START/STOP with your left thumb.

Note on recording
To record from the beginning of the tape, run the tape for about 15 seconds before recording. This will avoid missing the starting point when the tape is played back.

Note on the standby mode
If you leave the camcorder in the standby mode for 5 minutes or more, the camcorder will go off automatically. To resume the standby mode, turn STANDBY down once and slide it up again. To start recording, press START/STOP directly.

Note on lens cap
You can use the supplied lens cap as a handy camcorder stand. **(I-3)**

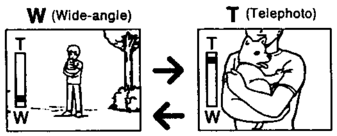
Recording Date and Time

(I-4)

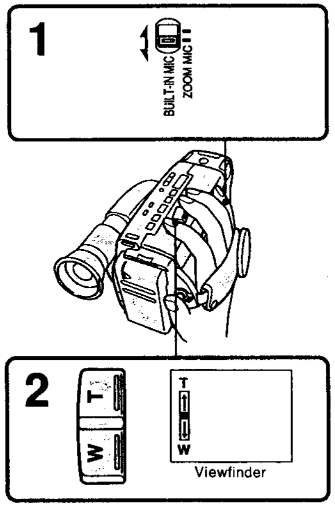
During camera recording or when in recording pause mode, press DATE (+) for date indicator or TIME (NEXT) for time indicator.
The date or time displayed in the viewfinder is recorded with the picture.

To stop recording date and time
Press DATE (+) or TIME (NEXT) again. The picture recording continues.

(I-5)



(I-6)



Zooming

(I-5)

Zooming is a recording technique that lets you change the size of the subject in the scene. Use "zoom-in (telephoto)" for dramatic close-ups, and "zoom-out (wide-angle)" for panoramic long shots. You can also use zooming to focus manually or to decide on a shooting angle. When you zoom in or zoom out, you can also set the sound to "zoom" along with the picture. For more professional-looking recordings, use zooming sparingly.

(I-6)

1 **Select the BUILT-IN MIC switch position.**
   a) When you want to record the usual Hi-Fi stereo sound regardless of zooming, set the BUILT-IN MIC switch to the green mark position.
   b) When you want the sound to "zoom" with the picture, set the BUILT-IN MIC switch to ZOOM MIC. ZOOM MIC indicator appears inside the viewfinder.

   Note
   When you set the BUILT-IN MIC switch to ZOOM MIC, the sound is recorded in monaural at the telephoto position.

2 **Press the T side (for telephoto) or the W side (for wide-angle) of POWER ZOOM button.**
   The camcorder's POWER ZOOM button offers two-levels of speed zooming. Press it firmly for high speed zooming and softly for relatively slow zooming.

Autofocusing in macro
Even small subjects, such as flowers, insects, and images in photographs, can literally fill the screen using in autofocusing in macro. We recommend you to use a tripod when shooting in macro.

1 Slide the AUTO LOCK switch up to turn on the AUTO LOCK lamp.

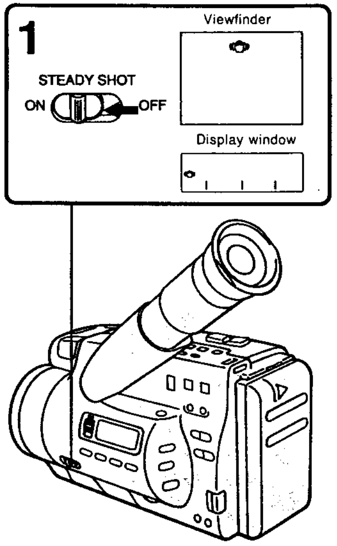
2 Keep pressing the W (MACRO) side of the power zoom button until the zooming stops.

3 Bring the camcorder as close as necessary to obtain the desired subject size.

Manual focusing in macro
You can also shoot with manual focus while doing close-up.
For details, see page 25.

Notes
- When you zoom out with the tele-conversion lens (not supplied), the frame of the lens may appear on both sides of the picture. For details, consult your Sony dealer.
- You can shoot a subject that is at least 80 cm (about 31 1/2 inches) away from the lens surface in the telephoto position.

(I-7)



Getting a Steady Picture

(I-7)

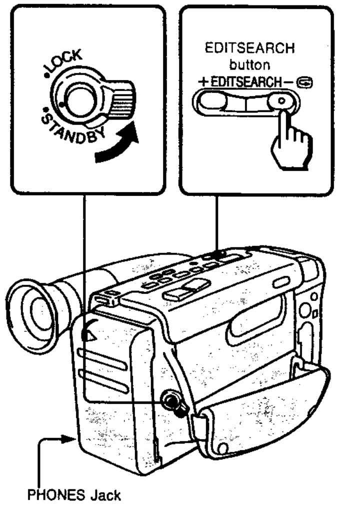
You can use the Steady Shot function to compensate for camera-shake.
Use Steady Shot:
— When you zoom in
— When you shoot scenery from a car window
— When you shoot scenes while moving

1 **Set the STEADY SHOT switch to ON.**
   The ⟴ indicator appears in the viewfinder and in the display window.

To release Steady Shot function
Set the STEADY SHOT switch to OFF.

Notes on using Steady Shot
- To conserve the battery, set the STEADY SHOT switch to OFF when you don't need it. When it is set to ON, battery power is used up more quickly.
- Steady Shot will not correct excessive camera movement.
- When you shoot stationary objects with a tripod, set the STEADY SHOT switch to OFF.

(I-8)



Checking the Recorded Picture In the Viewfinder (EDITSEARCH)

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture inside the viewfinder. After checking your recorded picture, you can also re-record over a previously recorded portion. **(I-8)**

Reviewing the last recorded scene — Rec Review
You can check the last portion of a scene you have just recorded in CAMERA mode. This is convenient for quick, on-the-spot checks.

1 **Set the camcorder in standby mode by turning STANDBY up.**

2 **Press the – (⊜) side of EDITSEARCH momentarily.**
The last few seconds of the recorded portion are played back inside the viewfinder. Then, the camcorder goes back to standby mode, ready for the next recording.

Checking your recorded picture — Edit search
You can check the recorded picture inside the viewfinder. After checking, you can also re-record over a previously recorded portion.

1 **Set the camcorder in standby mode by turning STANDBY up.**

2 **Keep pressing the + side or – side of EDITSEARCH to play back the picture while looking inside the viewfinder.**
+ side: to view the forward playback picture
– side: to view the reverse playback picture
To stop playback, release EDITSEARCH.

3 **To re-record over a recorded portion:**
   1 Keep pressing the + side or the – side of EDITSEARCH to locate the point you want to begin re-recording.
   2 Press START/STOP to begin re-recording. Re-recording begins from the point you released EDITSEARCH. As long as you do not eject the tape, the transition between the scenes will be smooth.

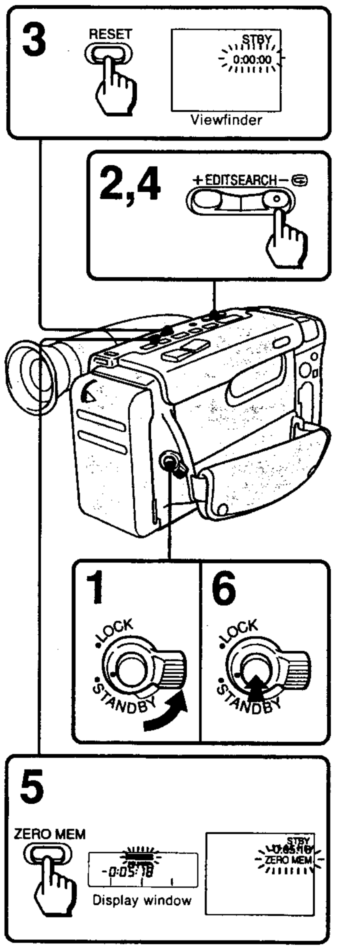
To monitor the sound while viewing the playback picture in the viewfinder
Connect a headphone to the PHONES jack.

1 While pressing the green button, set the POWER switch to PLAYER.

2 Press ◀◀ to rewind the tape and press □ where you want to stop.

3 Press ▷ to start playback.

(I-9)



Re-recording a Picture in the Middle of a Recorded Tape (Insert Recording)

(I-9)

1 **Turn STANDBY up to set the camcorder in standby mode.**

2 **While looking in the viewfinder, keep pressing the + or – side of EDITSEARCH and release the button where you want to end the insertion.**
The camcorder is set to standby mode.

3 **Press RESET.**
The counter is reset to zero.

4 **While looking in the viewfinder, keep pressing the – side of EDITSEARCH and release the button at the point where you want to start the insertion.**

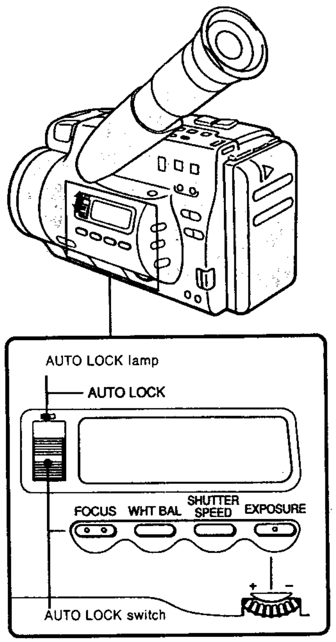
5 **Press ZERO MEM.**
The "ZERO MEM" indicator flashes in the display window and the viewfinder, and the insert ending point is stored in memory.

6 **Press START/STOP.**
Insert recording begins. It stops automatically at the counter zero point.

To cancel ZERO MEM
Press ZERO MEM.

Note
The picture may be distorted at the ending point when played back.

(J)



Recording a picture using manual adjustment

Selecting the Automatic/Manual Adjustment

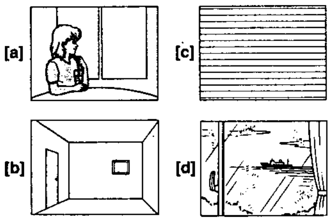
The camcorder's automatic functions offer you worry-free operation under most shooting conditions. But in some circumstances, manual adjustment is better for creative recording. You can manually adjust the focus, white balance, exposure, and/or shutter speed with this camcorder. **(J)**

Automatic adjustment
Slide the AUTO LOCK switch up to turn on the AUTO LOCK (green) lamp.
The camcorder adjusts the focus, white balance, and exposure automatically. It also sets the shutter speed to 1/50.

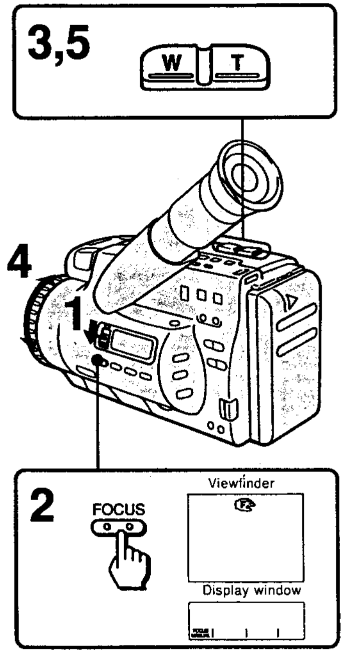
Manual adjustment
Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp. You can adjust the focus, white balance, exposure, and shutter speed manually. Even if you slide the AUTO LOCK switch down, the settings you didn't adjust manually remain the same as those in automatic adjustment.

About the previous settings
The settings you made with manual adjustment are retained in the following case:
— When you slide the AUTO LOCK switch up after you have made manual adjustment and then slide it down again
— When you set the POWER switch to OFF
They are canceled if it passes more than 5 minutes after you have detached the battery.

(K-1)



(K-2)



Manual Focusing

We recommend manual focusing in the following cases. **(K-1)**

- [a] Too much brightness behind the subject
- [b] Subjects with little contrast—walls, sky, etc.
- [c] Horizontal stripes
- [d] Subjects through frosted glass
- Insufficient light
- One subject is close; the other is in the center, but at a distance
- Subjects beyond nets, etc., or another subject passes in front of the camcorder
- Bright subject or subject reflecting light
- High contrast behind the subject (the background may be focused)
- Shooting a stationary subject when using a tripod
- To save battery power

(K-2)

1 Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.

2 Press FOCUS.
The ⓕ (manual focusing) indicator appears in the viewfinder and the FOCUS MANUAL indicator appears in the display window.

3 Keep pressing the T (telephoto) side of the power zoom button until the zooming stops.

4 Turn the focus ring to achieve sharp focus.

Note
The focus ring does not have a stop position.

5 Set the desired shot length using the power zoom button.

To reactivate autofocusing
Press FOCUS again, or slide the AUTO LOCK switch up to turn on the AUTO LOCK lamp. The ⓕ indicator in the viewfinder disappears.

Manual focusing in Macro

1 Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.

2 Press FOCUS.

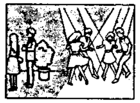
3 Keep pressing the W (MACRO) side of the power zoom button until the zooming stops.

4 Turn the focus ring to achieve sharp focus.

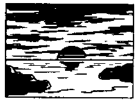
Shooting in relatively dark places
Shoot at wide angles after focusing in telephoto.

(L-1)

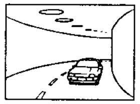
[a]



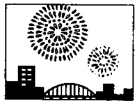
[d]



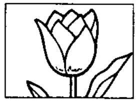
[b]



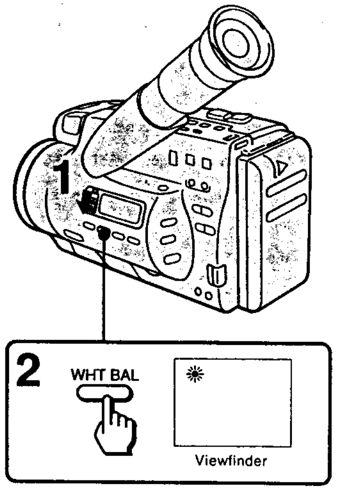
[e]



[c]



(L-2)



Adjusting the White Balance

White balance is the adjustment to make white subjects look white and to obtain a more natural colour balance for camera recording. In the following cases, we recommend you to adjust the white balance manually. **(L-1)**

Conditions	White balance mode (indicator inside the viewfinder)
Lighting conditions change quickly [a]	-☼- (indoor)
Conditions too bright, such as in photography studios	
Under sodium lamps [b]	
Under mercury lamps	
Monochromatic subject or background [c]	HOLD
Under a colour matching fluorescent lamp	☀ (outdoor)
Recording: ● a sunset/sunrise ● just after sunset ● just before sunrise [d] ● e.g. neon signs, fireworks [e]	

(L-2)

1 **Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.**

2 **Select the desired white balance mode by pressing WHT BAL.**
Each time you press the button, the indicator changes as follows:

No indicator (auto) → HOLD → ☀ (outdoors) → -☼- (indoors)
↑___________________________________|

Locking the white balance setting (HOLD mode)
When you set the white balance at HOLD mode, the last automatic white balance setting you made will be locked and maintained even if lighting conditions change. You should obtain better results by using the HOLD position when you shoot monochromatic subjects or backgrounds.

1 **Slide the AUTO LOCK switch up to turn on the AUTO LOCK lamp.**

2 **Point the camcorder at a white, flat object such as a white wall or paper for about 15 seconds.**

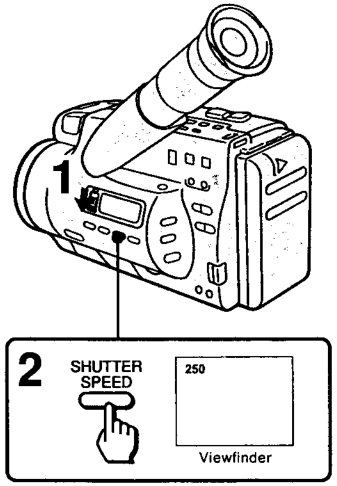
3 **Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.**

4 **Press WHT BAL to display the HOLD indicator inside the viewfinder.**

When you detach the battery or change the white balance setting, the locked white balance setting is no longer maintained. In this case, re-enter HOLD mode by following the procedures above again.

(M-1)

(M-2)



Setting the Shutter Speed

When you record a fast-moving subject, choose a higher shutter speed. The movement will look sharper during freeze frame when you play back the recorded tape with an 8 mm recorder that has the clean still function. Remember that you need enough lighting to use the high-speed shutter. **(M-1)**

Recommended setting for your situation

Example use	Recommended shutter speed
● On clear days, recording a golf or tennis swing (To view the hit ball clearly in the still picture mode, set to 1/4000 or 1/10000) ● Recording skiers	1/10000 or 1/4000 or 1/2000
● On overcast days, recording a moving merry-go-round or roller, coaster ● Recording outdoors from inside a vehicle (for stable shooting)	1/1000 or 1/250
● Instead of the ND2 filter (To reduce the exposure level to about half) ● Recording indoor sports (for stable shooting)	1/120

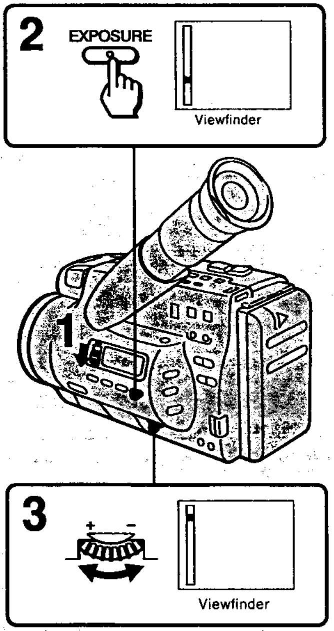
(M-2)

1 **Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.**

2 **Press SHUTTER SPEED repeatedly until the desired shutter speed indicator appears.**
Each time you press the button, the indicator changes as follows:

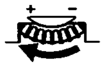
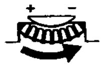
No indicator (1/50) → 120 (1/120) → 250 (1/250)
↑ ↓
10000 (1/10000)
↑
4000 (1/4000) ← 2000 (1/2000) ← 1000 (1/1000)

(N)



Adjusting the Exposure

In the following cases you should obtain better results by adjusting the exposure manually.

Conditions	Turn the EXPOSURE dial:
The background is too bright (backlighting)	upward 
Insufficient light: most of the picture is dark.	
Bright subject and dark background	downward 
To record the darkness faithfully	

(N)

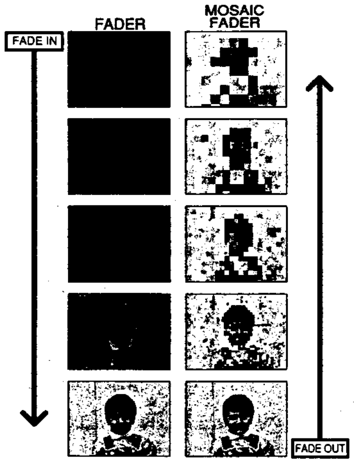
1 **Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.**

2 **Press EXPOSURE.**
The exposure is locked at the actual brightness.
The exposure indicator appears.

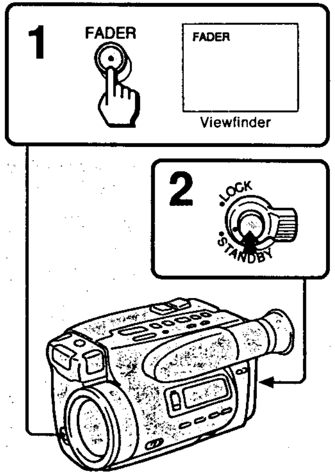
3 **Adjust the exposure by using the EXPOSURE dial.**
The exposure is locked at the adjusted brightness.

To re-enter the automatic exposure mode
Press EXPOSURE again, or slide the AUTO LOCK switch up to turn on the AUTO LOCK lamp.

(O-1)



(O-2)



Fade-in and Fade-out

You can fade a picture in or out with sound to give your recording a professional touch. When fading-in, you can make the picture gradually appear from black or mosaic while increasing the sound. When fading-out, you can make the picture gradually fade to black or mosaic while decreasing the sound. **(O-1)**

Note on the FADER button
Each time you press FADER, the indicator changes as follows:

FADER → M. FADER → No indicator
(black fade) (mosaic fade)

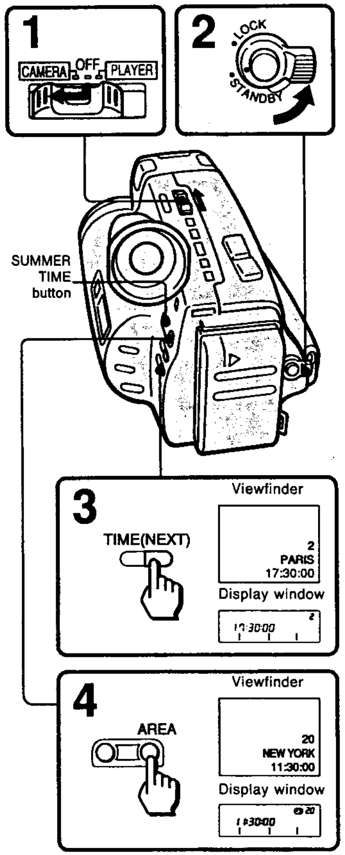
(O-2)

1 **Select the type of fade by pressing FADER as follows:**
- (a) When fading-in, press it after turning STANDBY up to put the camcorder into standby mode. The fade indicator starts flashing.
- (b) When fading-out, press it while recording. The fade indicator starts flashing.

2 **Press START/STOP.**
When fading-in, the fade indicator stops flashing and the recording starts fading in.
When fading-out, the fade indicator stops flashing, the picture fades out, and then the recording stops.

Canceling the fade-in/fade-out function
Before pressing START/STOP, press FADER repeatedly until the FADER indicator disappears.

(P-1)


1
CAMERA
OFF
PLAYER
2
LOCK
STANDBY
SUMMER TIME button
3
TIME(NEXT)
Viewfinder
2
PARIS
17:30:00
Display window
4
AREA
Viewfinder
20
NEW YORK
11:30:00
Display window

Using the World Clock

While traveling abroad, you can easily adjust to the time zone of the location you are using the camcorder by pressing AREA.
Before pressing AREA, set the date and time in your country (see page 15).

(P-1)

1 **While pressing the green button, set the POWER switch to CAMERA.**

2 **Turn STANDBY up.**

3 **Press TIME (NEXT).**
The time in your country appears.

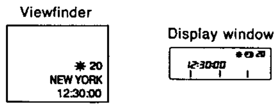
4 **Press AREA until the name and number of the time zone of the location you are using the camcorder appear.**
The ⊕ indicator appears in the display window. You can find the area name and number in the "Time zone chart" on the next page.

To check the date
Press DATE (+). To turn off the date indicator, press DATE (+) again.

To reset to your country area time
Press AREA until your country area and number appears.

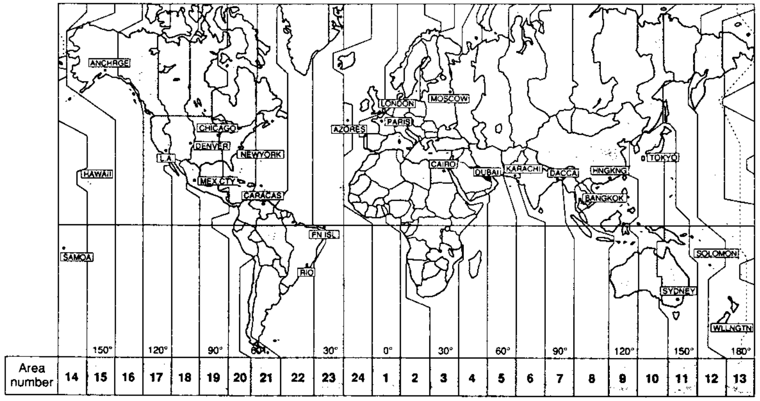
To set summer time (P-2)
Press SUMMER TIME. Time changes to summer time. ✷ indicator appears in the viewfinder and in the display window. To set to standard time, press SUMMER TIME again.

(P-2)


Viewfinder
✷ 20
NEW YORK
12:30:00
Display window

Using the World Clock

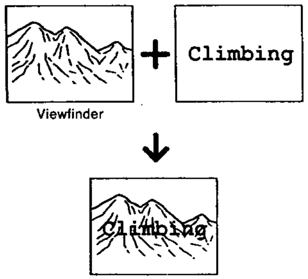
Time Zone Chart


ANCHRGE
HAWAII
SAMOA
L.A.
DENVER
CHICAGO
NEWYORK
MEX.CTY
CARACAS
FN ISL
RIO
AZORES
LONDON
PARIS
MOSCOW
CAIRO
DUBAI
KARACHI
DACCA
HNGKNG
BANGKOK
TOKYO
SOLOMON
SYDNEY
WLLNGTN
150°
120°
90°
60°
30°
0°
30°
60°
90°
120°
150°
180°
Area number
14
15
16
17
18
19
20
21
22
23
24
1
2
3
4
5
6
7
8
9
10
11
12
13

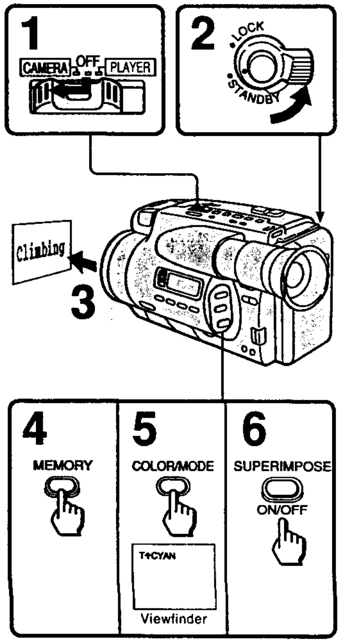
Area number	Area name	Countries or area*
1	LONDON	England, Morocco, Portugal, GMT (Greenwich Mean Time)
2	PARIS	Austria, France, Germany, Italy, Netherlands, Spain, Sweden, Switzerland, CET
3	CAIRO	Egypt, Finland, Greece, Israel, Turkey
4	MOSCOW	Ethiopia, Iraq, Kenya, Mauritius, Saudi Arabia, former Soviet Union (Moscow)
5	DUBAI	United Arab Emirates
6	KARACHI	Maldives, Pakistan
7	DACCA	Bangladesh, India, Myanmar
8	BANGKOK	Cambodia, Indonesia (Jakarta), Thailand, Vietnam
9	HNGKNG	China, Hong Kong, Malaysia, Philippines, Singapore, Taiwan
10	TOKYO	Japan, Korea
11	SYDNEY	Australia (Sydney)
12	SOLOMON	New Caledonia
13	WLLNGTN	Fiji, New Zealand
14	SAMOA	Western Samoa
15	HAWAII	Hawaii I., Tahiti, HST (Hawaii Standard Time)
16	ANCHRGE	U.S.A. (Alaska), AST (Alaska Standard Time)
17	L.A.	U.S.A. (Los Angeles, San Francisco), PST (Pacific Standard Time)
18	DENVER	U.S.A. (Denver), MST (Mountain Standard Time)
19	CHICAGO	U.S.A. (Chicago), Mexico, CST (Central Standard Time)
20	NEW YORK	Canada (Montreal), Jamaica, Peru, U.S.A. (New York, Washington D.C.), EST (East Standard Time)
21	CARACAS	Chile, Dominica, Venezuela
22	RIO	Argentina, Brazil, Uruguay
23	FN ISL.	Fernando de Noronha
24	AZORES	Azores Islands

* These are common names. The formal names may be different.

(Q-1)


Climbing
Viewfinder

(Q-2)


1
CAMERA OFF PLAYER
2
LOCK
STANDBY
3
Climbing
4
MEMORY
5
COLOR/MODE
T+CYAN
Viewfinder
6
SUPERIMPOSE
ON/OFF

Superimposing a Title

You can superimpose your own hand-written message or illustration (title) over the picture while you are recording. **(Q-1)**

- You can store one title.
- You can select the colour of the title from 8 colours.
- You cannot superimpose a title on the tape already recorded.
- Before superimposing, store the title.

Storing a Title

(Q-2)

Before storing

- Make the desired title card.
  Use a plain, white card and draw the title in thick, dark letters.
- Make sure the lithium battery is installed (page 8).

How to store

1 While pressing the green button, set the POWER switch to CAMERA.

2 Turn STANDBY up to set the camcorder in standby mode.

3 Point the camcorder to the title card and adjust the focus.

4 Press MEMORY to store the title.

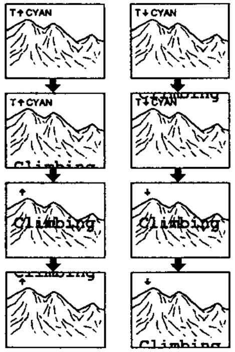
5 Press COLOR/MODE and select the title colour.
Each time you press the button, the indicator changes as follows:

WHT (white) → BLUE → GRN (green) → CYAN
↑ ↓
BLK (black) ← YEL (yellow) ← VIO (violet) ← RED

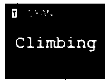
6 Press SUPERIMPOSE ON/OFF to turn off the title.

To check the title
Press SUPERIMPOSE ON/OFF in the standby mode.

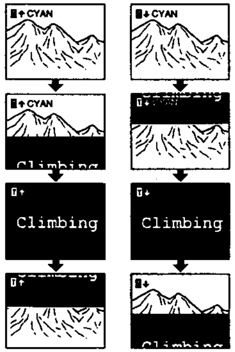
(Q-3)


T+CYAN
T+CYAN
T+CYAN
T+CYAN
Climbing
Climbing

(Q-4)



(Q-5)


CYAN
CYAN
CYAN
Climbing
Climbing
Climbing

(Q-6)

Various Display Modes of the Title

You can scroll your title like scrolling credits in the movies, or reverse the title.
Select the display mode of the title from the following table.

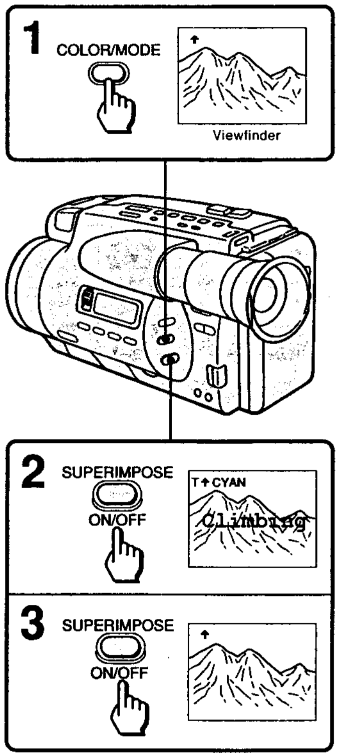
Display mode	Indicator inside the viewfinder
Scrolling up the title (Q-3) The title scrolls up and stops at the center.	↑
Scrolling down the title (Q-3) The title scrolls down and stops at the center.	↓
Reversing the title with the picture (Q-4)	T
Scrolling up the reversed title (Q-5)	T↑
Scrolling down the reversed title (Q-6)	T↓
Normal display mode	No indicator

Selecting the display mode
Before displaying the title, press COLOR/MODE until the indicator of the mode you want appears. **(Q-6)**

Function of the COLOR/MODE Button

This button has two functions: One is to select the title colour and the other is to select the title display mode. If the title is displayed, this button functions as the colour selection button, and if it is not, it functions as the mode selection button.

(Q-7)



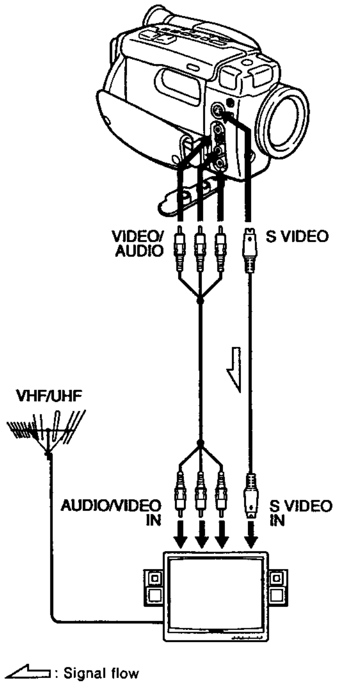
Superimposing a Title on Your Tape

The following shows how to superimpose a title using an example in which the title scrolls up. **(Q-7)**

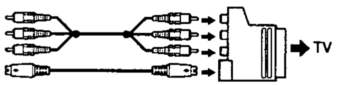
1. **Press COLOR/MODE to select the display mode of the title in standby mode.**
2. **Press SUPERIMPOSE ON/OFF at the point you want to insert the title during recording.** The title appears.
3. **At the point you want to turn off the title, press SUPERIMPOSE ON/OFF again.** The title goes off.

About the colour and the display mode indicators
The colour and the display mode indicators in the viewfinder are not recorded.

(R-1)



: Signal flow



Connection for Playback

You must connect the camcorder to the TV and/or VTR properly to view the playback picture.
Check if your TV has video/audio input jacks. For details on the TV and VTR, refer to their operation manuals.

Case 1: Connecting to a TV with Video/Audio Input Jacks

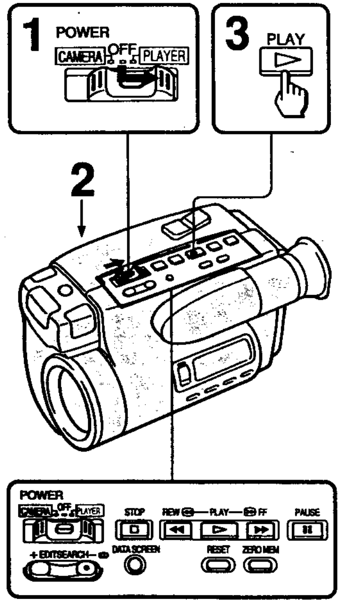
(R-1)

Leave the TV aerial cable connected to the TV.

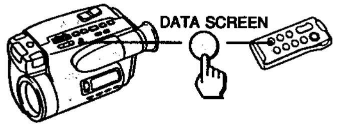
1. **Connect the camcorder to the TV using the supplied A/V connecting cable.**
   - **If your TV has an S video input jack,** connect it to the camcorder using the S video connecting cable (supplied). In this case, you do not need to connect the yellow plug of the AV connecting cable.
   - **If your TV is a monaural type,** connect only the white plug for audio to both the camcorder and TV.
   - **If your TV has a 21-pin connector (EUROCONNECTOR),** use the supplied 21-pin adaptor.
2. **Set the TV/VIDEO selector on the TV to VIDEO.**

Playing Back a Tape

(S-1)



(S-2)



Turn on the TV, and select the channel for viewing a playback picture (set the TV/VIDEO selector to VIDEO). Of course, you can monitor the playback picture in the viewfinder at the same time. You can use the supplied Remote Commander.

(S-1)

1 **While pressing the green button, set the POWER switch to PLAYER.**

2 **Insert a tape.**

3 **Press ▷.**
Playback starts.
To stop playback, press □ (STOP).
To rewind the tape, press ◀◀ (REW).
To advance the tape rapidly, press ▶▶ (FF).

To view a still picture
Press ‖ during playback. To resume playback, press ‖ or ▷ again.

Various Playback Modes

To monitor a picture in high-speed and locate a desired scene quickly (picture search).
Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor a picture in high-speed during fastforward or rewind to locate a desired scene more quickly (skip scan)
Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

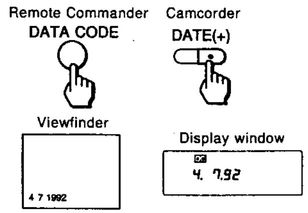
Displaying the viewfinder screen indicators on the TV. (S-2)
Press DATA SCREEN. The indicators in the viewfinder appear on the TV. To erase them, press DATA SCREEN again.

LP mode
When you play back a tape recorded in LP (long play) mode, the LP indicator lights up inside the viewfinder.

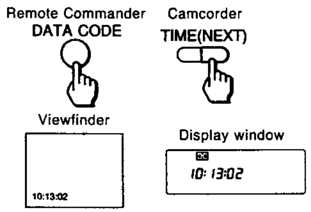
In playback pause mode
You can view the picture in a sequence of stop-motion images by pressing EDITSEARCH. If you keep pressing EDITSEARCH, you can view the picture playback in forward or reverse direction.

Notes
- Streaks appear and sound is muted in the various playback modes.
- When the still picture mode lasts for 5 minutes or more, the camcorder automatically enters the stop mode.

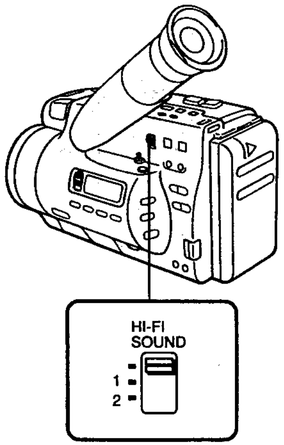
(S-3)



(S-4)



(S-5)



Displaying the Recording Date or Time — Data Code Function

Even if you didn't record date or time, you can display the recording date or time (data code) on the TV during playback or editing. You can also display the data code in the viewfinder and in the display window at the same time.

Each time you press DATA CODE on the Remote Commander, display changes as follows:

Date → Time → No indicator
↑_____________________|

Displaying the recording date (S-3)
Press DATE (+) on the camcorder, or press DATA CODE on the Remote Commander. To erase the date, press DATE (+) again or DATA CODE twice.

Displaying the recording time (S-4)
Press TIME (NEXT) on the camcorder, or press DATA CODE on the Remote Commander twice. To erase the time, press TIME (NEXT) or DATA CODE again.

Note on the data code
When bars (-:- -:- -) appear in place of the data code, it indicates:
- A blank portion of the tape is being played back.
- The tape was recorded by another camcorder without a data code function.
- The tape is recorded without having date and time set.
- The tape is unreadable due to tape damage or noise.

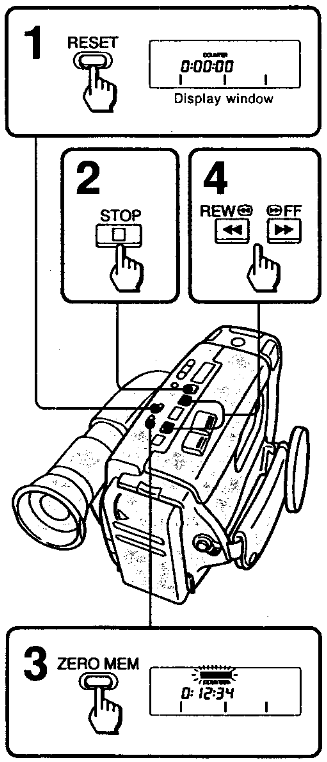
Selecting the Monitor Sound

(S-5)
You can select the playback sound with the Hi-Fi SOUND switch.
Normally set the switch to the "Green position."

When playing back an AFM monaural sound recorded tape
Set the switch to "Green position."
Monaural sound comes from both audio jacks.

When playing back a dual soundtrack tape
Set switch to "1" or "2."

(T)



Using the Tape Counter

The tape counter tells you the actual recording or playback time. You can also use the tape counter to memorize a specific point on the tape. The tape counter does not work on blank portions of the tape.

To Index the Whole Tape

Press RESET at the beginning of the tape so that the counter shows "0:00:00".

To Return to a Preset Point

(T)

1 **During playback, press RESET at the point you later want to locate.**
The counter shows "0:00:00".

2 **Press □ when playback has finished, as usual.**

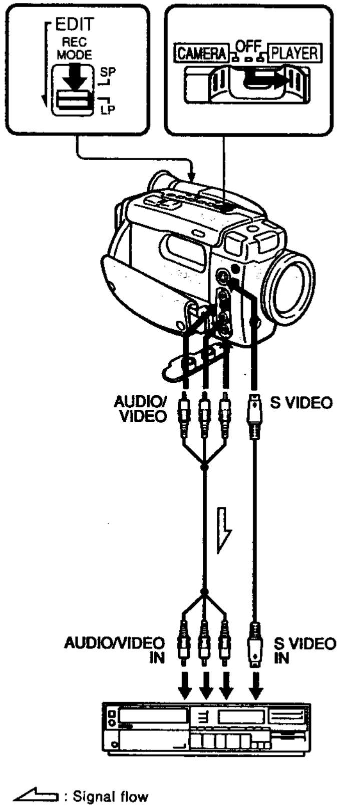
3 **Press ZERO MEM.**
The "ZERO MEM" indicator flashes.

Note
The ZERO MEM does not function during playback.

4 **Press ◀◀ or ▶▶ .**
The tape rewinds or advances and stops automatically when the counter reaches about zero.

Note
The counter reading and the point on the tape may not correspond exactly. Use the counter as a guide. There will be a time lag of several seconds especially when you repeat fast-forwarding/rewinding and play back a tape recorded in LP and SP modes mixed.

(U)



Editing onto Another VTR

You can create your own video programme by editing with any other 8mm, Hi8 mm, Betamax, VHS, S-VHS, VHSC, S-VHSC VTRs that has video/audio inputs.

Before you begin, you need to connect the camcorder to a TV via a VTR as illustrated. For details, see page 37. **(U)**

1 Insert a tape to be recorded on into the recording VTR.

2 Move EDIT on the camcorder in the direction of the arrow.

3 Set the POWER switch of the camcorder to PLAYER and insert your recorded tape.

4 Play back the tape on the camcorder and locate the point where you want to start editing and set the camcorder to the playback pause mode.

5 On the recording VTR, locate the recording start point and set the VTR to the recording pause mode.

6 Press ❚❚ on the camcorder and on the VTR simultaneously to start editing.

To edit more scenes, repeat steps 4 to 6.

To stop editing, press □ on the camcorder and on the VTR.

Use of the EDITSEARCH button
You can play back a tape in normal/reverse direction by keep pressing EDITSEARCH during playback pause. You can play back still pictures successively at specific intervals by pressing EDITSEARCH intermittently.

Note on DATA SCREEN function
If you have displayed the viewfinder screen indicators on the TV (DATA SCREEN function), erase the indicators by pressing DATA SCREEN so that they will not be superimposed on the edited tape.

Use of the EDIT switch
When you set the EDIT switch in the direction of the arrow (EDIT ON), picture deterioration resulting from editing can be kept to a minimum.

Note on the Data Code signal
Data code signal is not output from the S VIDEO or VIDEO jack on the camcorder. But, you can record the recording date or time displayed on the TV or inside the viewfinder onto the editing tape.

Usable Cassettes and Recording/Playback Modes

This section describes the usable cassettes and recording/playback modes with your camcorder.

Selecting Cassette Types

This Hi8 system is an extension of the standard 8 mm system, and was developed for a higher-quality picture.
You can use Hi8 video and standard 8 mm cassettes with your camcorder. But, when you want to record in Hi8 system, you can use only the Hi8 video cassettes. A standard 8 mm cassette cannot be recorded in the Hi8 system.

To Record in	Use this kind of cassette	Set the Hi8 AUTO/OFF switch to
Hi8 Hi8 system	Hi8 type	AUTO
Standard 8 mm 8 system	Hi8 type	OFF
	Standard 8 mm type	AUTO or OFF

If you use a Hi8 cassette in the standard 8 mm recording system, set the Hi8 AUTO/OFF switch to OFF while recording.

If you are going to play back the tape using a standard 8 mm video recorder, you should record the tape in the standard 8 mm system.

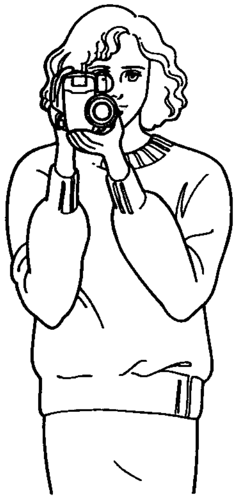
When You Play Back

The Playback mode is selected automatically according to the recording system (Hi8/standard 8 mm, SP/LP) with which the tape has been recorded.

AFM Hi-Fi stereo
In the following cases, the sound will be in monaural.
- When you play back a tape recorded with this camcorder on an AFM Hi-Fi monaural video recorder.
- If you play back a tape with this camcorder that has been recorded on AFM Hi-Fi monaural video recorder.

RC time code
This camcorder automatically marks the RC time code during camera recording, but cannot display the RC time code in the viewfinder and display window during playback or editing.
When you want to display the RC time code, use the camcorder with the RC time code displaying function.

(V)



Hints for Better Shooting

Getting Stable Pictures

Assume good posture for shooting (V)
For hand-held shots, it is important to hold the camcorder properly.
- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the camcorder with your thumb.
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it. When adjusting the focus manually, make sure the camcorder does not move.
- Place your eye firmly against the viewfinder eyecup.

Use a tripod
If you have a tripod for a still camera, you can also use it with the camcorder. If a tripod is not available, try placing the camcorder on a table top or any other flat surface of suitable height.

Note
When attaching a non-SONY tripod, make sure that the length of the camera mounting screw is less than 6.5 mm (9/32 in). Otherwise, the screw may damage the inner parts of the camcorder.

Keep the horizontal plane level
You can easily determine the horizontal plane by using the viewfinder frame as a reference.

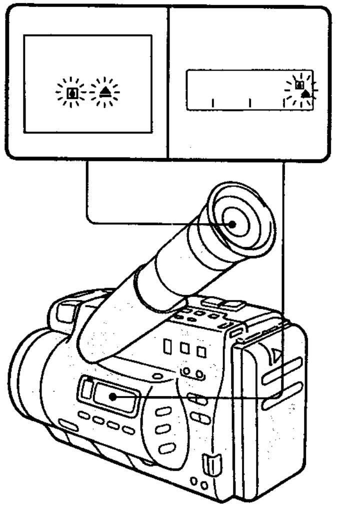
Lighting

Shoot with the sun behind you
When the light source is behind the subject, or in the following situations, the subject will be recorded too dark and the background too light. In this case, use the manual EXPOSURE function. (See page 28.)
- The subject is indoors and there is a window behind the subject.
- Bright light sources such as fluorescent or incandescent lamps are included in the scene.
- When you are shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

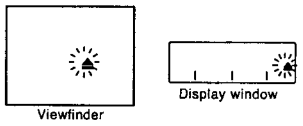
Use video light in the dark
To get the best colours, you must maintain a very high lighting level. When using a video light, attach it to this camcorder with a video light attachment (not supplied).

Notes and Precautions

(W-1)



(W-2)



Notes on Moisture Condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the camcorder may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with a moisture sensor. However, take the following precautions:

Inside the camcorder
(W-1)
When ▣ and ⏏ indicators in the viewfinder and in the display window flash, moisture has condensed inside the camcorder. If this happens, no function except for cassette ejection will work.
Eject the tape, turn off the camcorder, and leave it with the cassette holder open for about 1 hour.
The camcorder can be used again if the ▣ indicator does not appear when the power is turned on again.

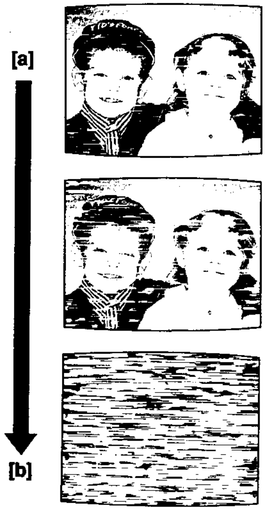
On the surface of the tape
(W-2)
When the tape is inserted and a tape transport button (▷, ▶▶, etc.) is pressed, the ⏏ indicator flashes in the viewfinder and in the display window.
If this happens, no function except for tape ejection will work.
Eject the tape and let it sit for about 1 hour.
The tape can be used again if the ⏏ indicator does not appear when the tape is inserted and a tape transport button is pressed.

On the lens
No indicator will appear, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

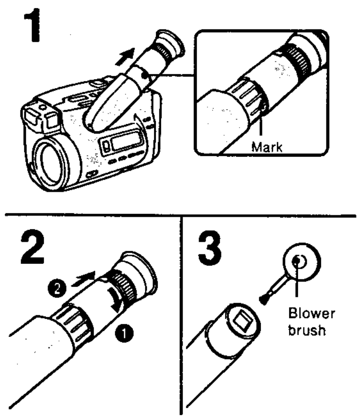
How to prevent moisture condensation
When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

1 Be sure to tightly seal the plastic bag containing the camcorder.
2 Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about one hour).

(W-3)



(W-4)



Notes on Video Head Cleaning

(W-3)

To ensure clear pictures, clean the video heads periodically.
When playback pictures are noisy or hardly visible, the video heads may be contaminated.
[a] Slight contamination
[b] Critical contamination

If this happens,
1 Clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied).
2 After cleaning, check if the picture is clear by recording or playing back with an ordinary tape.
3 If the picture is still noisy, repeat the cleaning. (Do not repeat cleaning more than 5 times.)

Caution
Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note
If the V8-25CLH cleaning cassette is not available in your area, consult your Sony service facility.

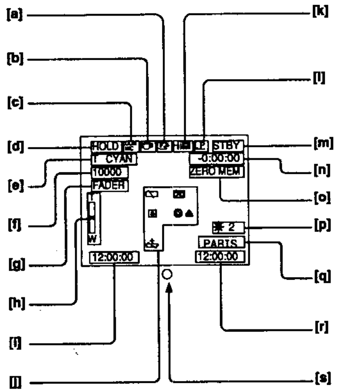
Removing Dust from inside the Viewfinder

(W-4)

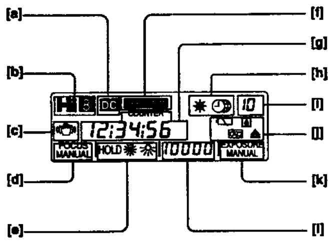
1 **Pull out the viewfinder barrel until the illustrated mark appears.**
2 **Turn it counterclockwise until it stops (❶) and pull it out (❷).**
3 **Clean the surface of the cover with a blower brush.**

After cleaning, push it in the viewfinder barrel and align it with the mark on the viewfinder. Then turn it clockwise until it stops and push it in.

(X-1)


[a]
[b]
[c]
[d]
[e]
[f]
[g]
[h]
[i]
[j]
[k]
[l]
[m]
[n]
[o]
[p]
[q]
[r]
[s]
HOLD
T CYAN
10000
FADER
W
12:00:00
STBY
-0:00:00
ZERO MEM
2
PARIS
12:00:00

(X-2)


[a]
[b]
[c]
[d]
[e]
[f]
[g]
[h]
[i]
[j]
[k]
[l]
Hi8
DC
COUNTER
12:34:56
10
FOCUS MANUAL
HOLD
10000
EXPOSURE MANUAL

Indicators in the Viewfinder and the Display Window

For details on each indicator, refer to the pages indicated in parentheses.

In the Viewfinder

(X-1)

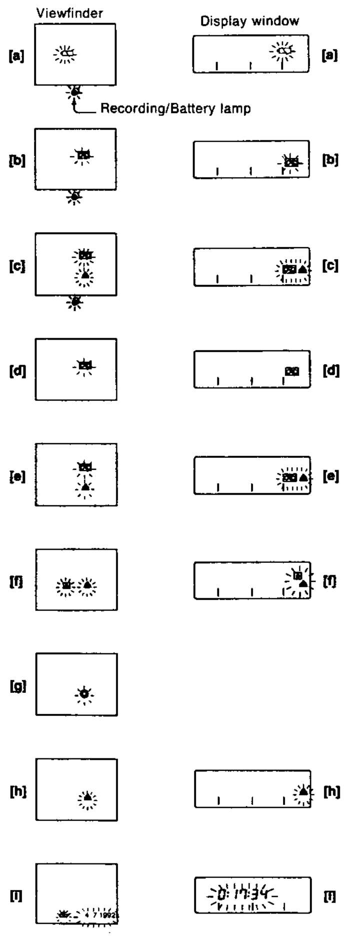
[a] Manual focusing (F) (25)
[b] Lights up while compensating for camera-shake. (21)
[c] Lights up while setting BUILT-IN MIC to the ZOOM MIC. (20)
[d] White balance mode (✻, -☼-, HOLD) (26)
[e] Title mode and colour (32)
[f] Shutter speed (27)
[g] FADER has been pressed (29)
[h] Power zoom indicator (20)/ Exposure indicator (28)
[i] Data code (39)
[j] Warning indicators (51)
[k] Lights up while recording in Hi8 system (42)
[l] Lights up when recording in SP/LP mode and playing back a tape recorded in SP/LP mode. (42)
[m] Tape transport mode (18), (38)
[n] Tape counter (18), (40)
[o] ZERO MEM is pressed. (23), (40)
[p] Area number (15), (31)
[q] Area name (15), (31)
[r] Date or Time (15), (19)
[s] Lights up during recording. When flashing: "Change battery or cassette." (13), (51)

Display Window

(X-2)

[a] Data code (39)
[b] Playing back or recording in Hi8 format (42)
[c] Appears while compensating for camera-shake (21)
[d] Manual focusing (25)
[e] White balance mode (26)
[f] ZERO MEM is pressed. (23), (40)
[g] Tape counter, time, date, or tape counter indicator (15), (18), (19), (40)
[h] World clock indicator (15), (31)
[i] Area number (15), (31)
[j] Warning indicators (51)
[k] Adjusting exposure manually (28)
[l] Shutter speed (27)

(Y)


Viewfinder
Display window
Recording/Battery lamp
[a]
[b]
[c]
[d]
[e]
[f]
[g]
[h]
[i]

Trouble Check

If indicators flash in the viewfinder or in the display window, or a caution lamp on the camcorder flashes, check the following (Y):

[a] Battery Remaining
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

[b] The tape is near the end.

[c] The tape has run out.

[d] No tape has been inserted.

[e] The tab on the tape is out (red).

[f] Moisture condensation has occurred.

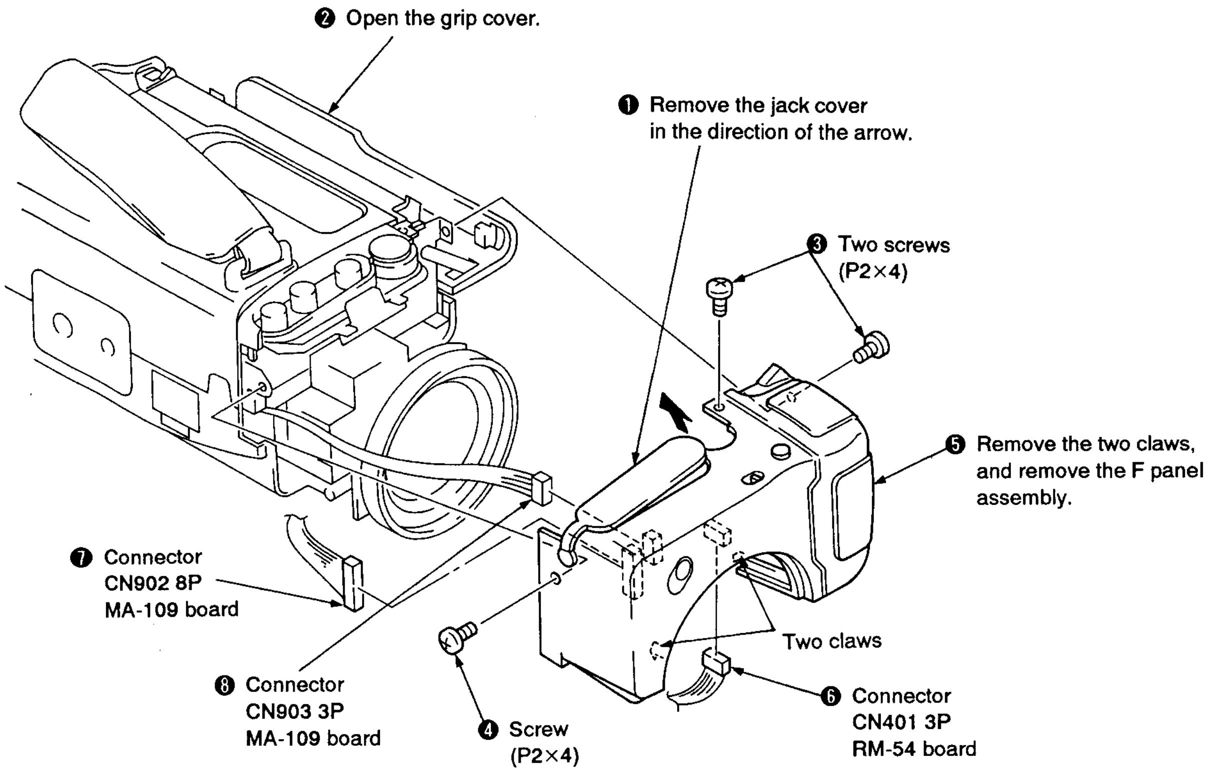
[g] The video heads may be contaminated.

[h] Some other trouble has occured. Disconnect the power source and contact your Sony dealer or local authorized facility.

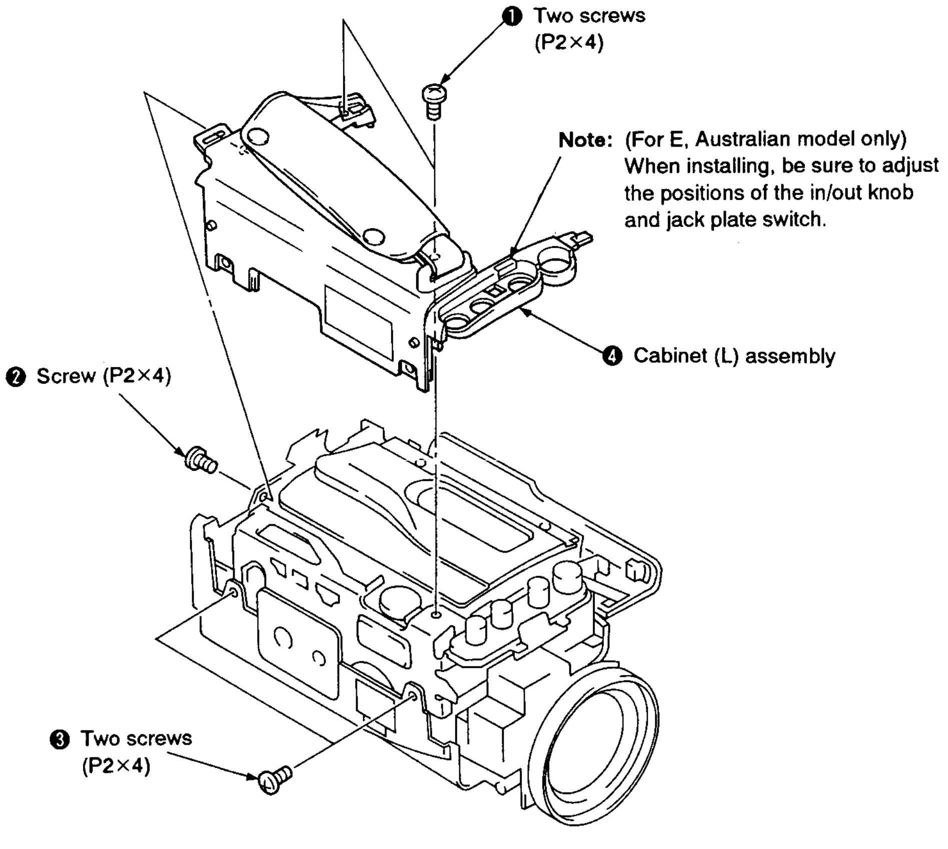
[i] The lithium battery is weak or the lithium battery is not installed.

SECTION 2
DISASSEMBLY

2-1. REMOVAL OF F PANEL ASSEMBLY

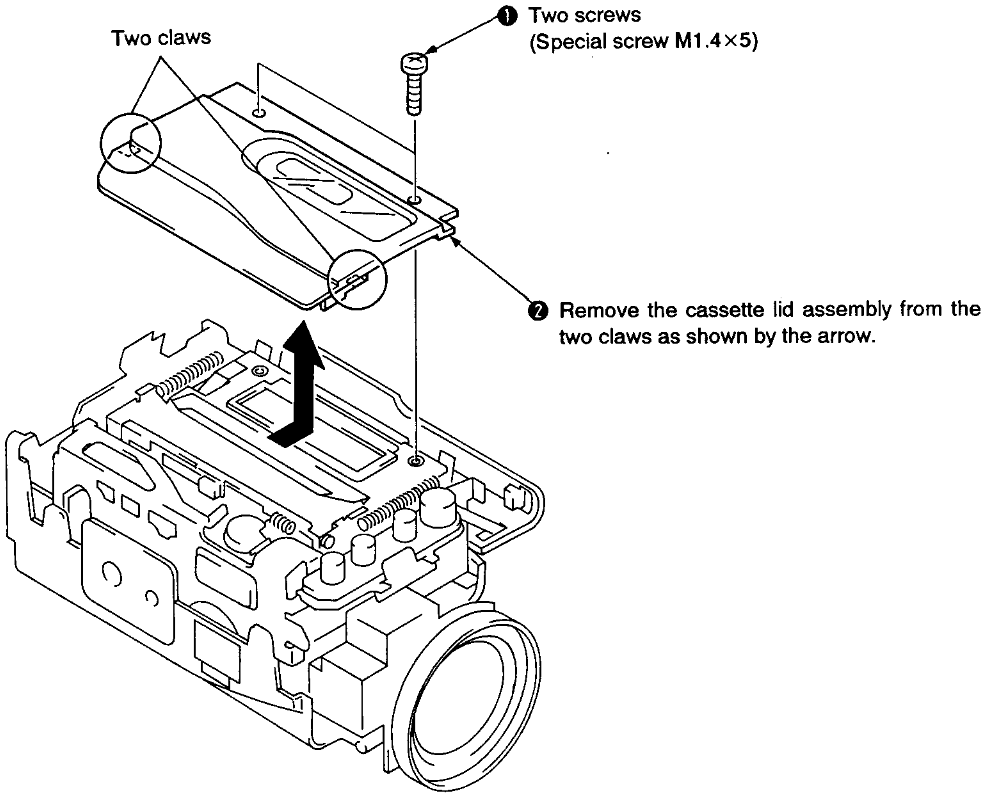

❷ Open the grip cover.
❶ Remove the jack cover in the direction of the arrow.
❸ Two screws (P2×4)
❺ Remove the two claws, and remove the F panel assembly.
❼ Connector CN902 8P MA-109 board
Two claws
❽ Connector CN903 3P MA-109 board
❹ Screw (P2×4)
❻ Connector CN401 3P RM-54 board

2-2. REMOVAL OF CABINET (L) ASSEMBLY

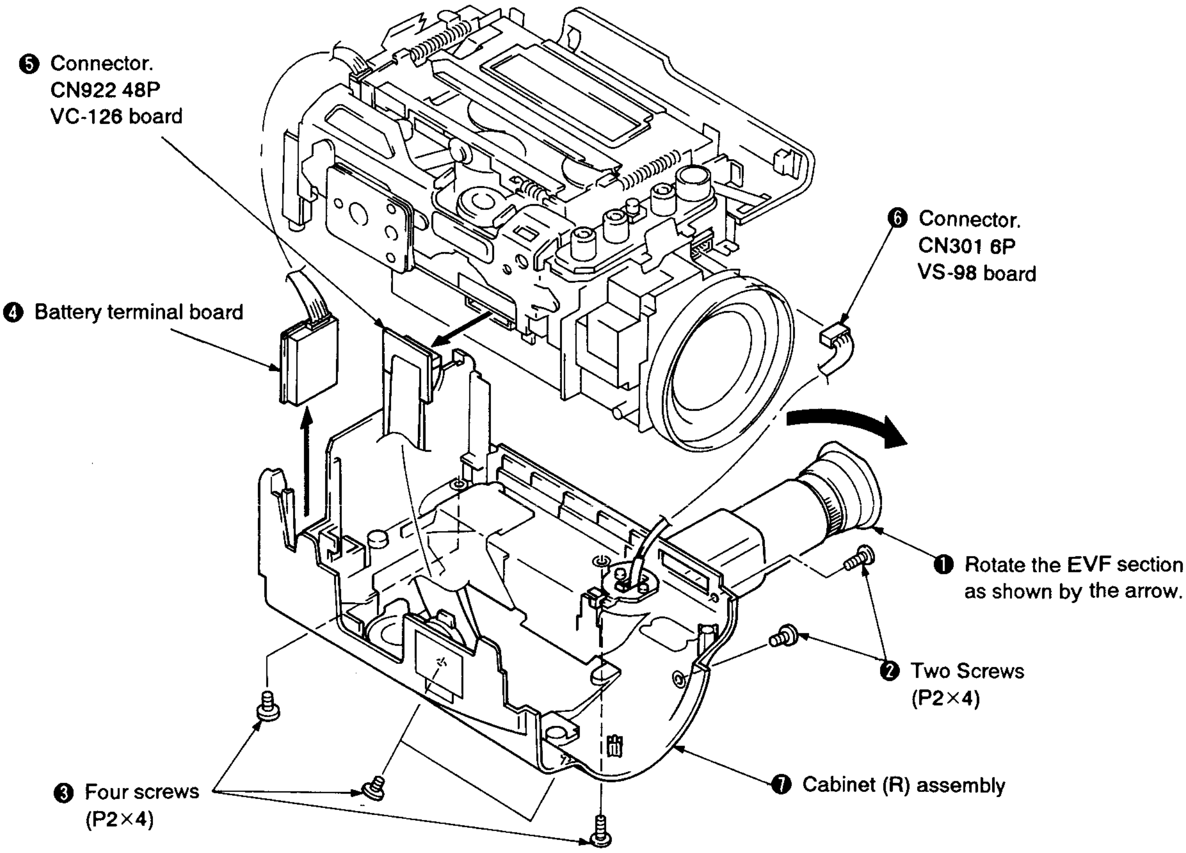

❶ Two screws (P2×4)
❹ Cabinet (L) assembly
❷ Screw (P2×4)
❸ Two screws (P2×4)

Note: (For E, Australian model only) When installing, be sure to adjust the positions of the in/out knob and jack plate switch.

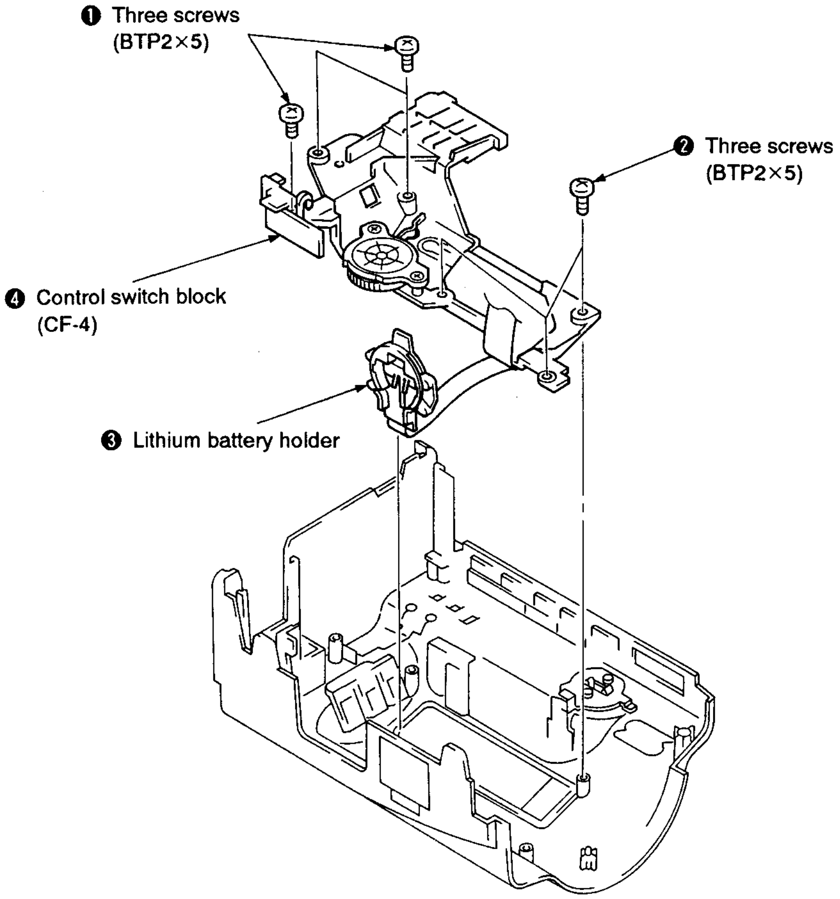
2-3. REMOVAL OF CASSETTE LID ASSEMBLY


Two claws
❶ Two screws
(Special screw M1.4×5)
❷ Remove the cassette lid assembly from the two claws as shown by the arrow.

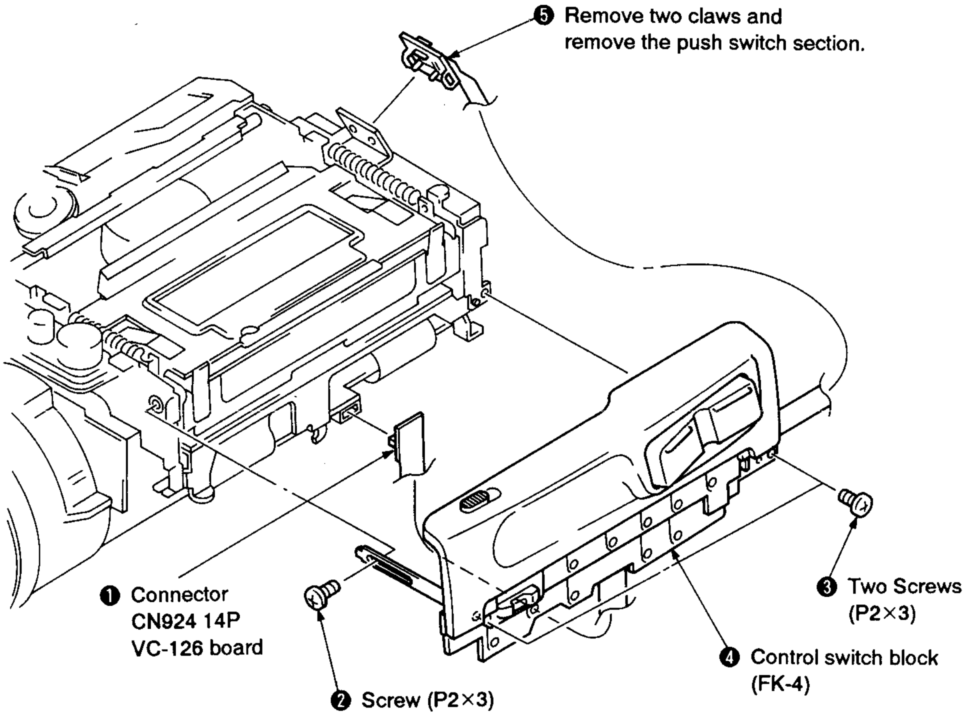
2-4. REMOVAL OF CABINET (R) ASSEMBLY


❺ Connector.
CN922 48P
VC-126 board
❻ Connector.
CN301 6P
VS-98 board
❹ Battery terminal board
❶ Rotate the EVF section as shown by the arrow.
❷ Two Screws
(P2×4)
❼ Cabinet (R) assembly
❸ Four screws
(P2×4)

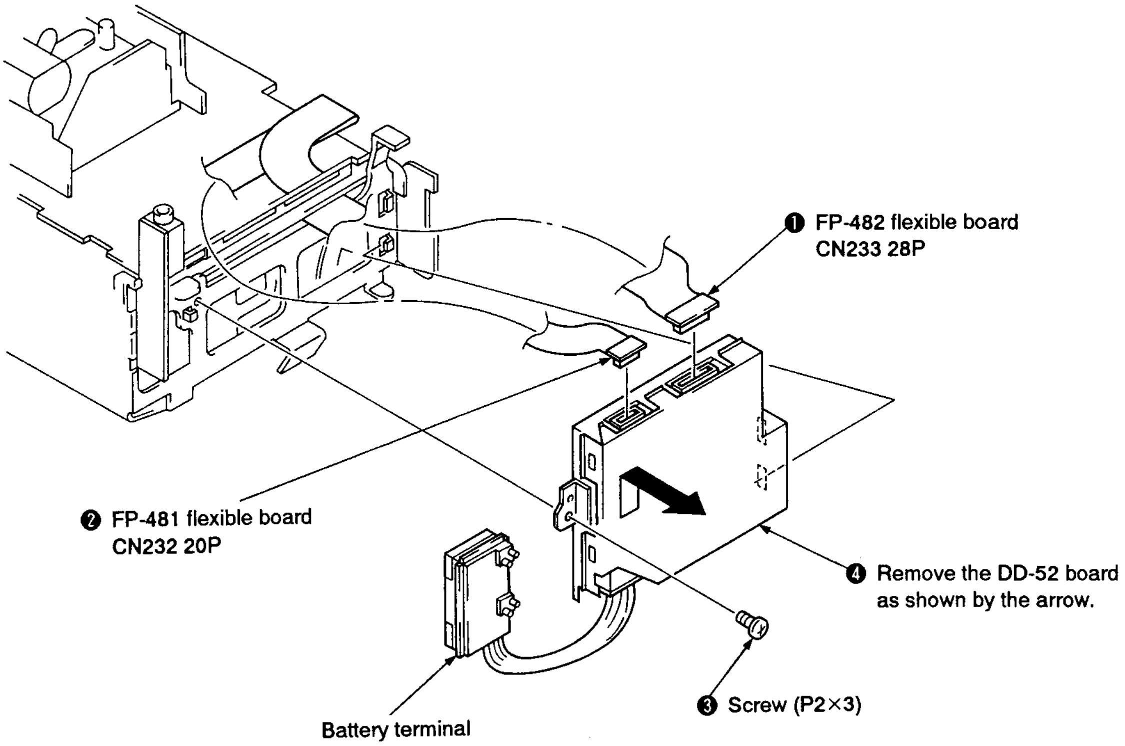
2-5. REMOVAL OF CONTROL SWITCH BLOCK (CF-4)


❶ Three screws
(BTP2×5)
❷ Three screws
(BTP2×5)
❹ Control switch block
(CF-4)
❸ Lithium battery holder

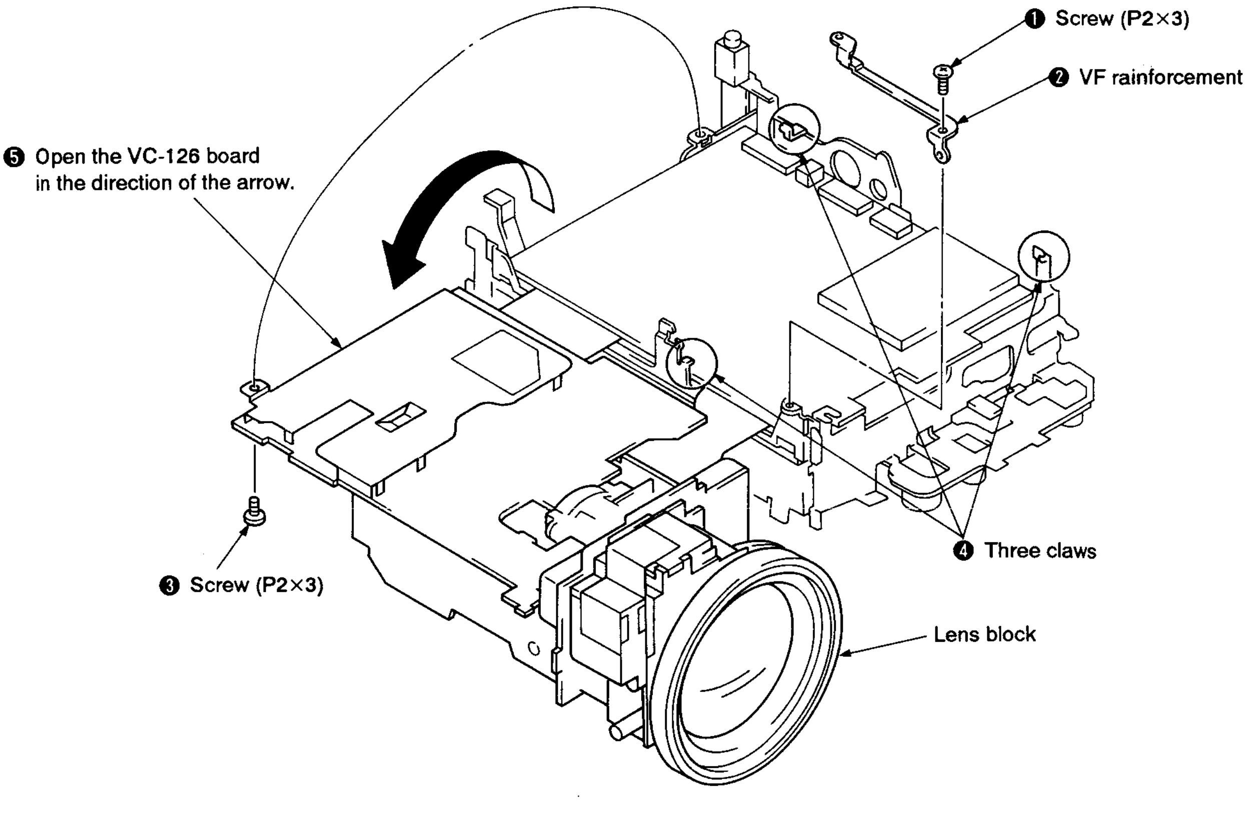
2-6. REMOVAL OF CONTROL SWITCH BLOCK (FK-4)


❺ Remove two claws and
remove the push switch section.
❶ Connector
CN924 14P
VC-126 board
❷ Screw (P2×3)
❸ Two Screws
(P2×3)
❹ Control switch block
(FK-4)

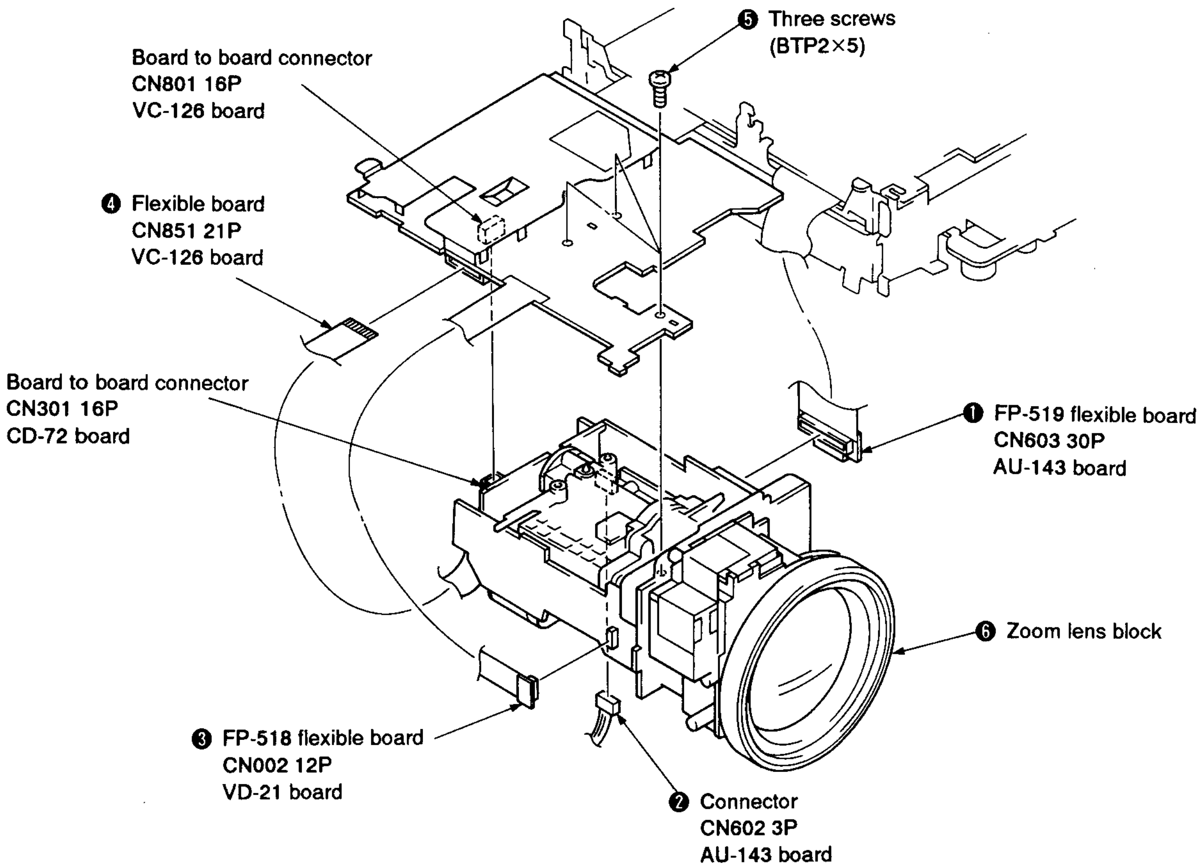
2-7. REMOVAL OF DD-52 BOARD (DC-DC CONVERTER UNIT)


❶ FP-482 flexible board
CN233 28P
❷ FP-481 flexible board
CN232 20P
❹ Remove the DD-52 board
as shown by the arrow.
❸ Screw (P2×3)
Battery terminal

2-8. OPENING OF VC-126 BOARD

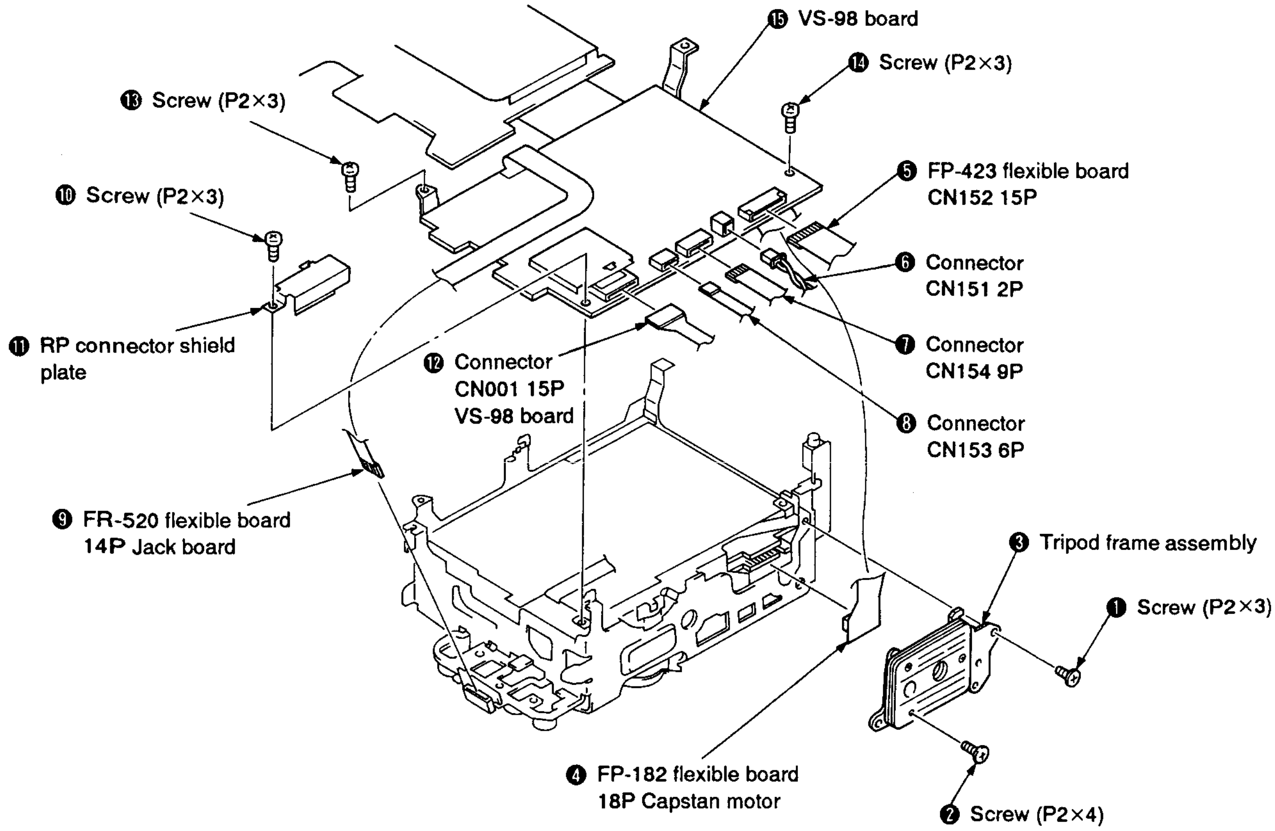

❶ Screw (P2×3)
❷ VF rainforcement
❺ Open the VC-126 board
in the direction of the arrow.
❹ Three claws
❸ Screw (P2×3)
Lens block

2-9. REMOVAL OF ZOOM LENS ASSEMBLY



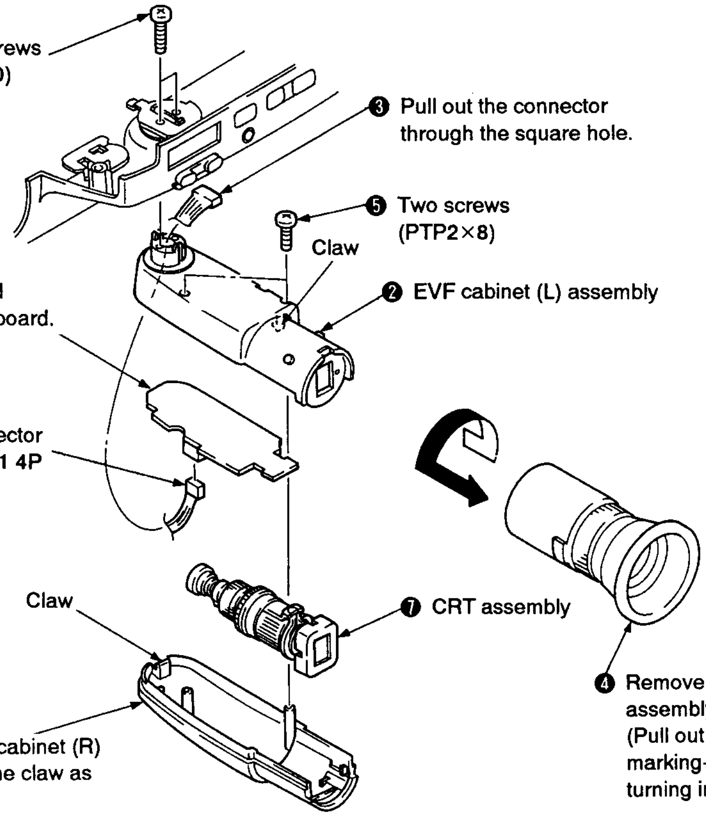
❺ Three screws (BTP2×5)
Board to board connector CN801 16P VC-126 board
❹ Flexible board CN851 21P VC-126 board
Board to board connector CN301 16P CD-72 board
❶ FP-519 flexible board CN603 30P AU-143 board
❻ Zoom lens block
❸ FP-518 flexible board CN002 12P VD-21 board
❷ Connector CN602 3P AU-143 board

2-10. REMOVAL OF VS-98 BOARD



⓯ VS-98 board
⓮ Screw (P2×3)
⓭ Screw (P2×3)
❿ Screw (P2×3)
❺ FP-423 flexible board CN152 15P
❻ Connector CN151 2P
⓫ RP connector shield plate
⓬ Connector CN001 15P VS-98 board
❼ Connector CN154 9P
❽ Connector CN153 6P
❾ FR-520 flexible board 14P Jack board
❸ Tripod frame assembly
❶ Screw (P2×3)
❹ FP-182 flexible board 18P Capstan motor
❷ Screw (P2×4)

2-11. REMOVAL OF EVF ASSEMBLY (VF-42 BOARD)



❶ Two screws (P2×10)

❷ EVF cabinet (L) assembly

❸ Pull out the connector through the square hole.

❹ Remove the finder holder assembly in the arrow direction. (Pull out to the position of the marking-off line and remove by turning in the arrow direction.)

❺ Two screws (PTP2×8)

❻ Remove the EVF cabinet (R) by lifting up with the claw as its fulcrum.

❼ CRT assembly

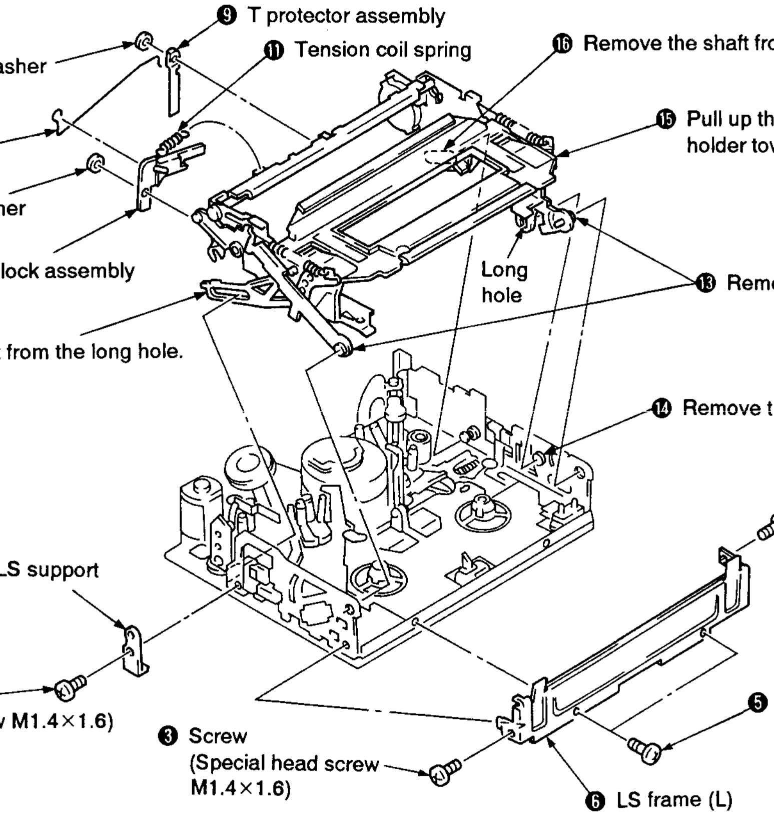
❽ Remove a claw and remove the VF-42 board.

❾ Connector CN501 4P

2-12. REMOVAL OF CASSETTE COMPARTMENT HOLDER ASSEMBLY

In the beginning, set to USE mode.

(When setting to USE mode, see "2-4. Handling of Mode Selector" in "8 mm video mechanical adjustment manual II FL Mechanism (Q mechanism)".)



❶ Screw (Special head screw M1.4×1.6)

❷ LS support

❸ Screw (Special head screw M1.4×1.6)

❹ Screw (Special head screw M1.4×1.6)

❺ Two screws (Special head screw M1.4×1.6)

❻ LS frame (L)

❼ Stopper washer

❽ Joint bar

❾ T protector assembly

❿ Washer

⓫ Tension coil spring

⓬ TP arm block assembly

⓭ Remove the two shafts from the hole.

⓮ Remove the shaft from the long hole.

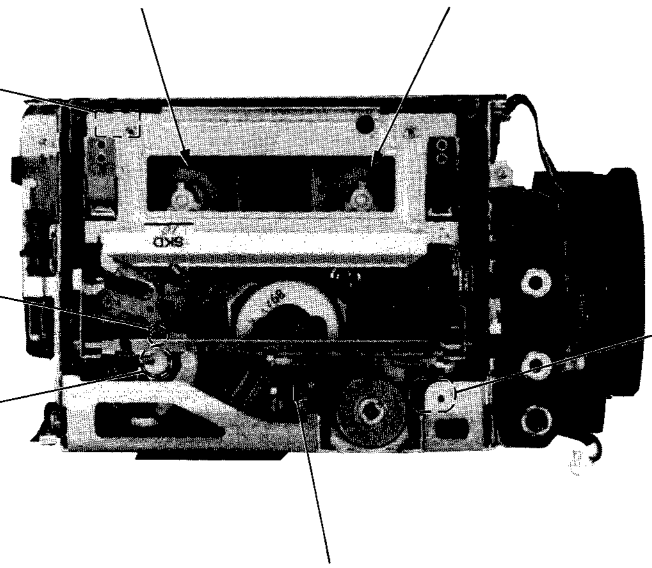
⓯ Pull up the cassette compartment holder towards the drum.

⓰ Remove the shaft from the long hole.

⓱ Remove the shaft from the long hole.

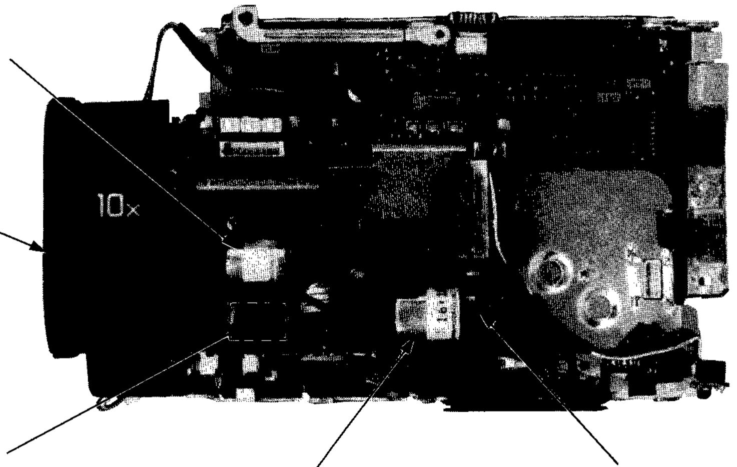
2-13. INTERNAL VIEWS

— Left Side —


T reel table assembly
X-3727-951-2
S reel table assembly
X-3727-952-1
S992
REC PROOF, ME/MP,
Hi8 MP push switch
1-572-802-12
Pinch roller
M903
Loading motor
(LA12G-344VA)
1-541-607-21
M902
Capstan motor
(U-21A)
8-835-329-12
M901

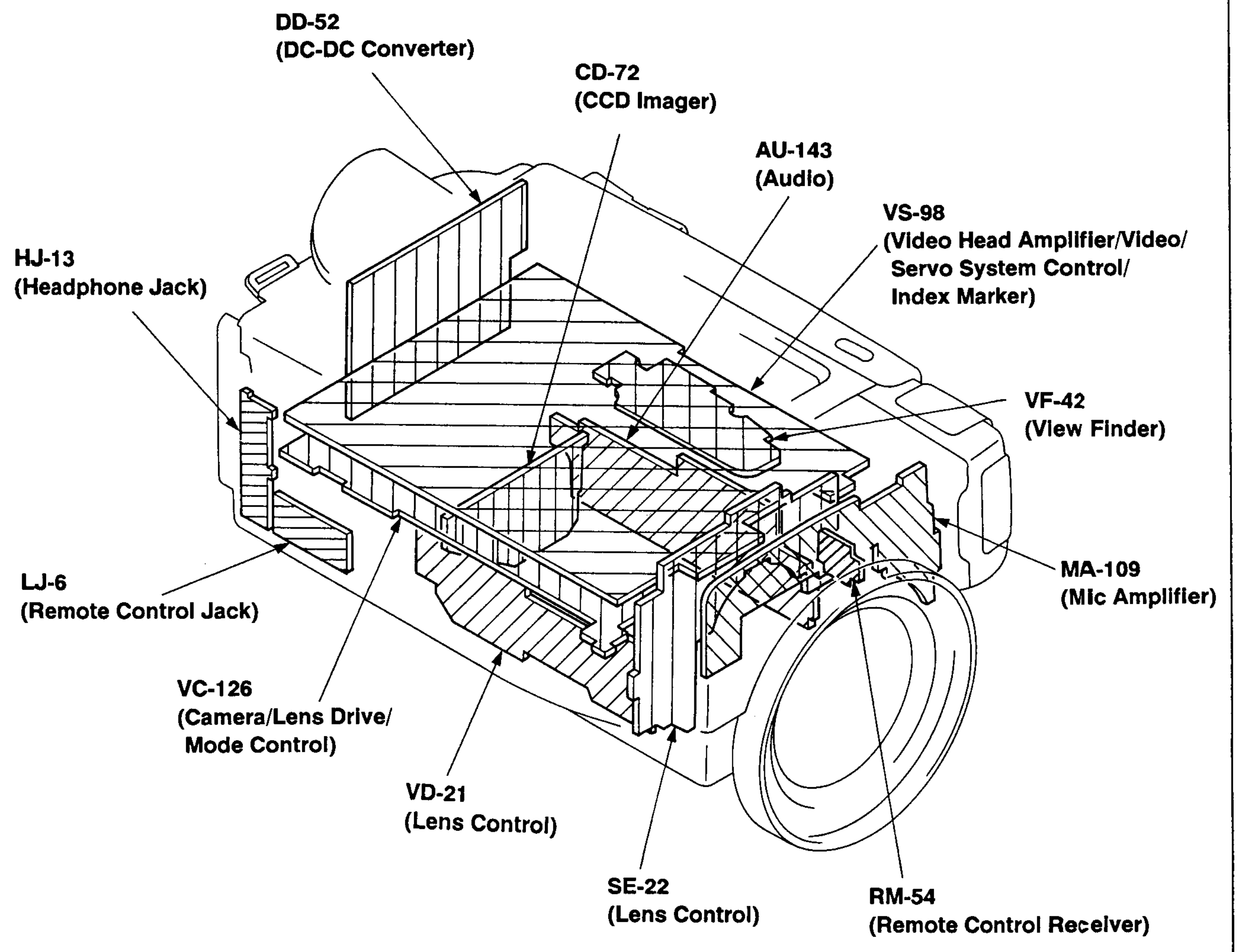
Drum Assembly	A-7048-534-A (DGH-80A-R)
Upper Rotary Drum Assembly	A-7049-461-A (DGR-80-R-(1)) (Color mark:Green, Green/Red, Black, Black/Red)
	A-7049-464-A (DGR-80-R-(2)) (Color mark:Red, Red/Red, Blue, Blue/Red)

— Right Side —

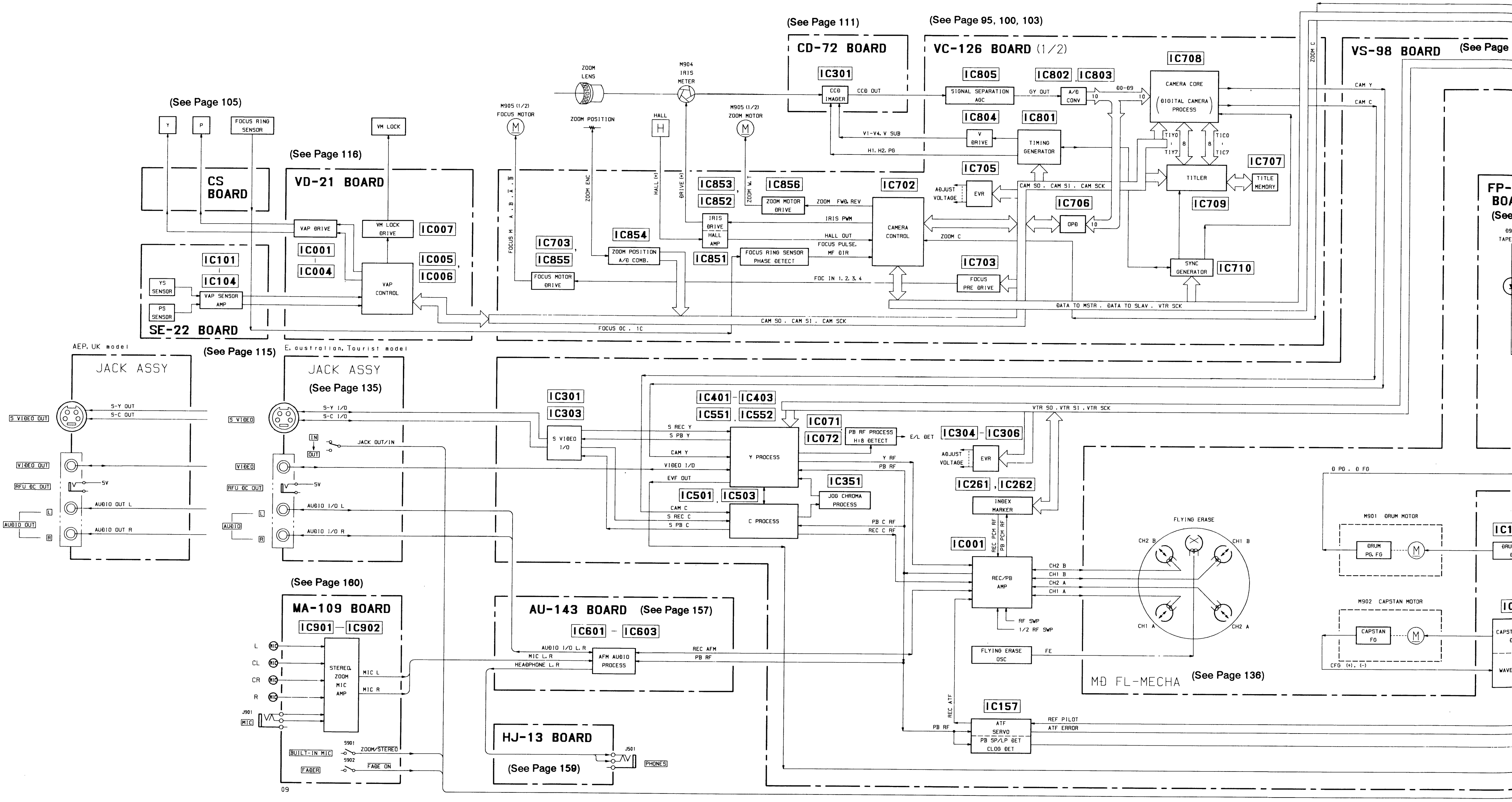

Initialize motor assembly
3-708-444-01
Zoom lens
(VCL-6210WB)
10x
M904
IG meter (Iris)
3-708-445-01
M906
PZ motor assembly (Zoom)
3-708-442-01
M905
Stepping motor assembly (Focus)
3-708-443-01

SECTION 3
DIAGRAMS

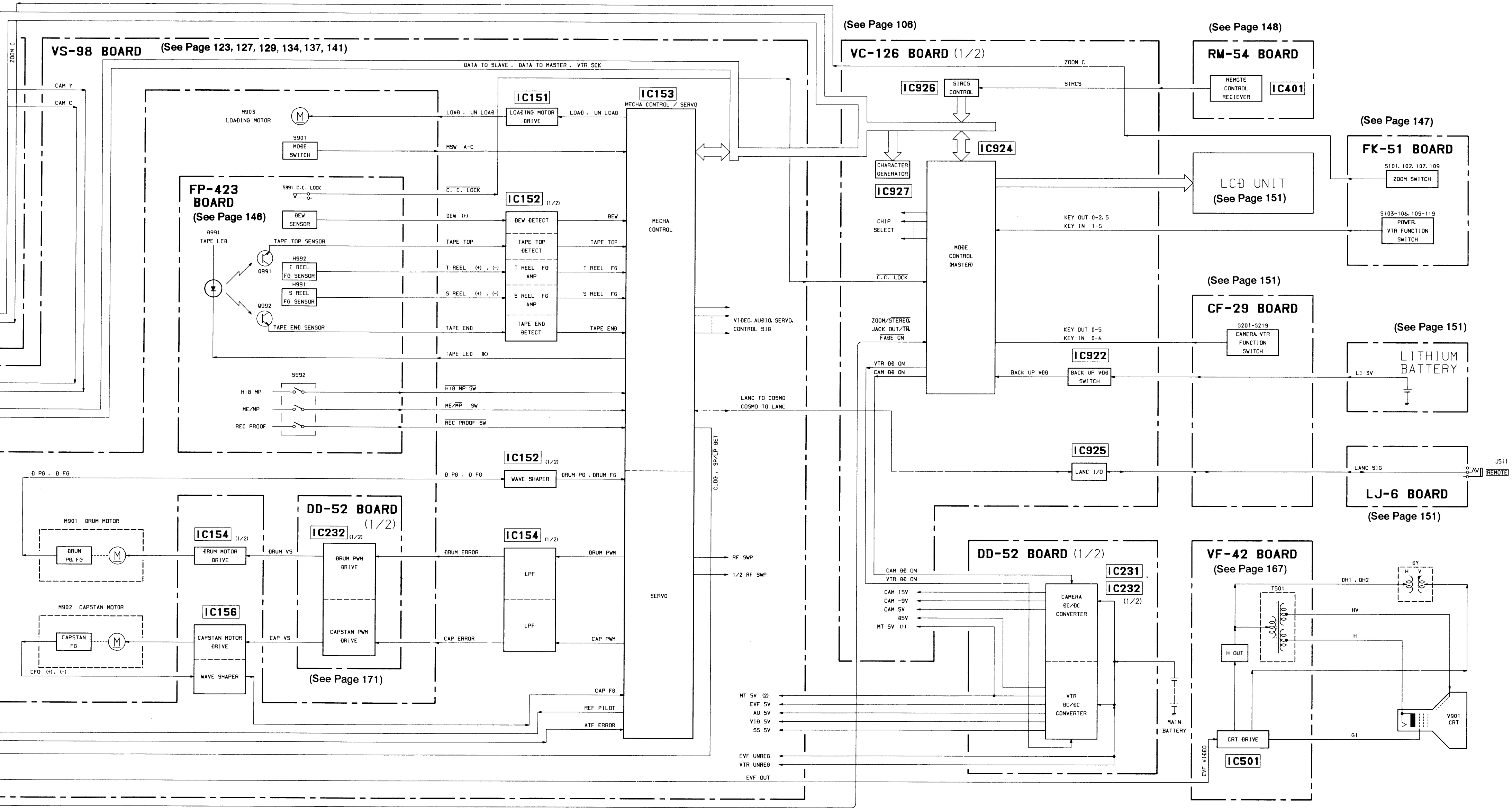
3-1. CIRCUIT BOARD LOCATION


DD-52
(DC-DC Converter)
CD-72
(CCD Imager)
AU-143
(Audio)
VS-98
(Video Head Amplifier/Video/ Servo System Control/ Index Marker)
HJ-13
(Headphone Jack)
VF-42
(View Finder)
MA-109
(Mic Amplifier)
LJ-6
(Remote Control Jack)
VC-126
(Camera/Lens Drive/ Mode Control)
VD-21
(Lens Control)
SE-22
(Lens Control)
RM-54
(Remote Control Receiver)

3-2. OVERALL BLOCK DIAGRAM

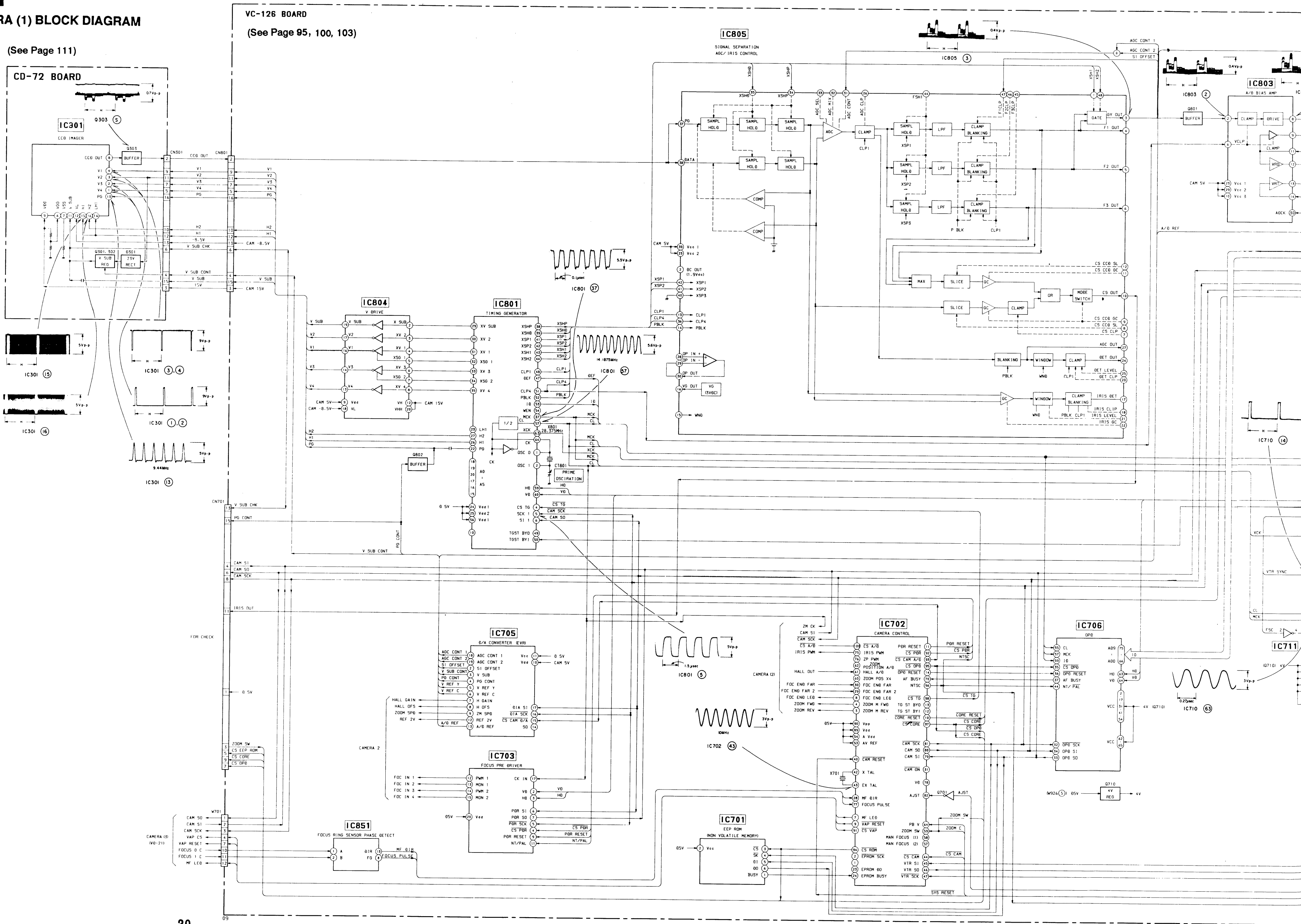


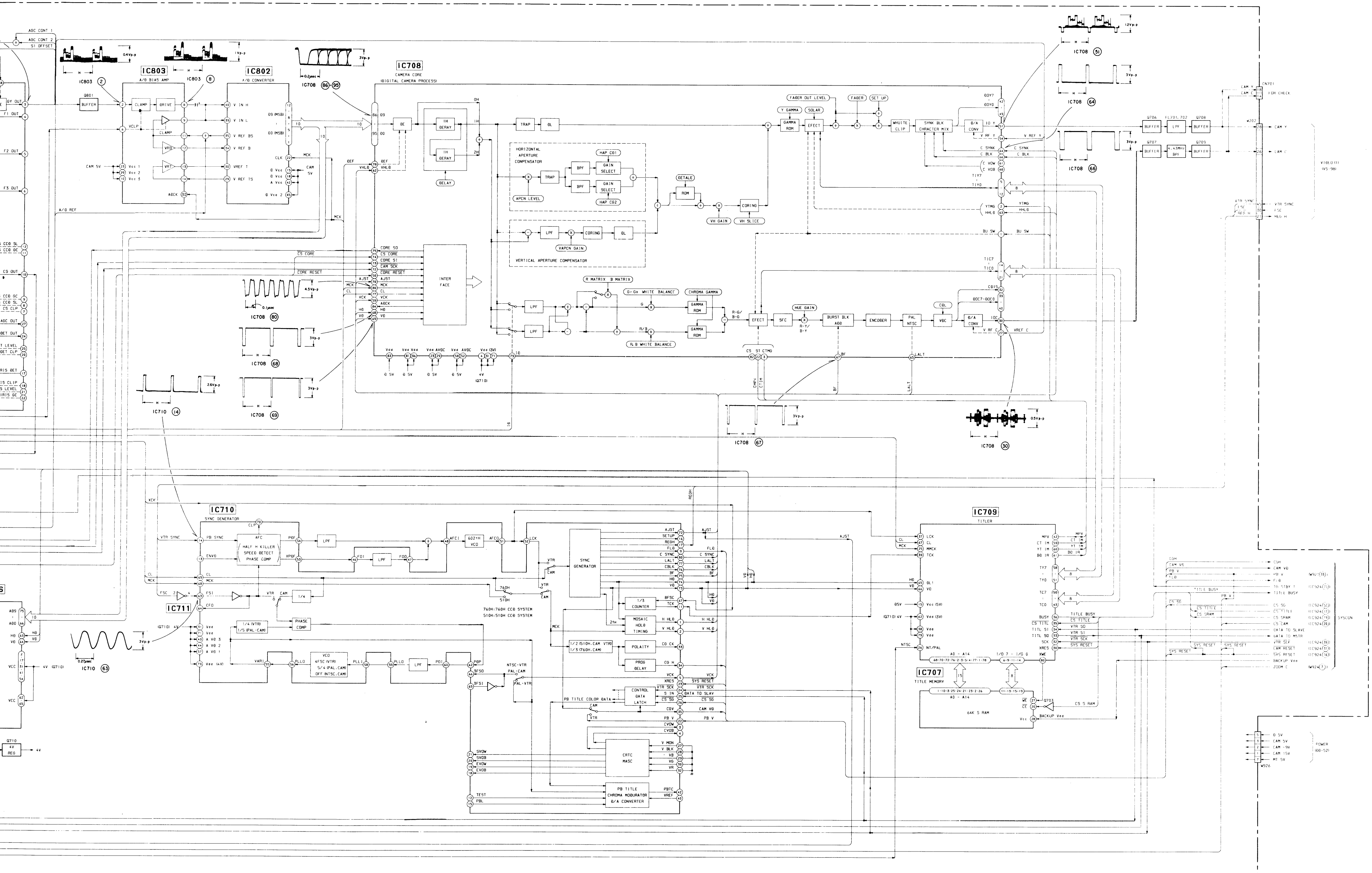
(See Page 111)
CD-72 BOARD
IC301
CCD IMAGER
CCD OUT
(See Page 95, 100, 103)
VC-126 BOARD (1/2)
IC805
SIGNAL SEPARATION AGC
GY OUT
IC802
IC803
A/D CONV
D0-D9
IC708
CAMERA CORE
(DIGITAL CAMERA PROCESS)
IC804
V DRIVE
IC801
TIMING GENERATOR
V1-V4, V SUB
H1, H2, PG
TIY0
TIY7
TIC0
TIC7
IC707
TITLE MEMORY
TITLER
IC709
IC705
ADJUST VOLTAGE
EVR
IC706
DPD
CAM SO, CAM SI, CAM SCK
IC702
CAMERA CONTROL
ZOOM C
IC703
FOCUS PRE DRIVE
SYNC GENERATOR
IC710
DATA TO MSTR, DATA TO SLAV, VTR SCK
VS-98 BOARD
(See Page
CAM Y
CAM C
ZOOM C
FP-
BOA
(See
TAPE
ZOOM LENS
M904 IRIS METER
M905 (1/2) FOCUS MOTOR
ZOOM POSITION
HALL
H
M905 (1/2) ZOOM MOTOR
M
ZOOM ENC
HALL (+)
DRIVE (+)
ZOOM W, T
IC853
IC852
IC856
ZOOM MOTOR DRIVE
ZOOM FWD, REV
IRIS DRIVE
HALL AMP
IRIS PWM
HALL OUT
FOCUS PULSE, MF DIR
IC854
ZOOM POSITION A/D COMB.
IC851
FOCUS RING SENSOR PHASE DETECT
IC703
IC855
FOCUS MOTOR DRIVE
FOCUS M A, B, Ā, B̄
FOC IN 1, 2, 3, 4
CAM SO, CAM SI, CAM SCK
FOCUS DC, 1C
(See Page 105)
Y
P
FOCUS RING SENSOR
VM LOCK
CS BOARD
(See Page 116)
VD-21 BOARD
VAP DRIVE
VM LOCK DRIVE
IC007
IC001
IC004
VAP CONTROL
IC005
IC006
IC101
IC104
YS SENSOR
PS SENSOR
VAP SENSOR AMP
SE-22 BOARD
AEP, UK model
(See Page 115)
E, australian, Tourist model
JACK ASSY
S VIDEO OUT
S-Y OUT
S-C OUT
VIDEO OUT
RFU DC OUT
5V
AUDIO OUT
AUDIO OUT L
AUDIO OUT R
L
R
JACK ASSY
(See Page 135)
S VIDEO
S-Y I/O
S-C I/O
IN
OUT
JACK OUT/IN
VIDEO
RFU DC OUT
AUDIO
AUDIO I/O L
AUDIO I/O R
IC301
IC303
S VIDEO I/O
IC401
IC403
IC551
IC552
S REC Y
S PB Y
CAM Y
VIDEO I/O
EVF OUT
Y PROCESS
IC071
IC072
PB RF PROCESS Hi8 DETECT
E/L DET
VTR SO, VTR SI, VTR SCK
IC304
IC306
ADJUST VOLTAGE
EVR
Y RF
PB RF
IC351
JOG CHROMA PROCESS
IC501
IC503
CAM C
S REC C
S PB C
C PROCESS
PB C RF
REC C RF
IC261
IC262
INDEX MARKER
REC PCM RF
PB PCM RF
IC001
REC/PB AMP
CH2 B
CH1 B
CH2 A
CH1 A
RF SWP
1/2 RF SWP
FLYING ERASE OSC
FE
FLYING ERASE
CH2 B
CH1 B
CH1 A
CH2 A
MD FL-MECHA
(See Page 136)
D PG, D FG
M901 DRUM MOTOR
DRUM PG, FG
M902 CAPSTAN MOTOR
CAPSTAN FG
CFG (+), (-)
IC1
DRU
IC
CAPST
WAVE
REC ATF
IC157
PB RF
ATF SERVO
PB SP/LP DET
CLOG DET
REF PILOT
ATF ERROR
(See Page 160)
MA-109 BOARD
IC901
IC902
L
CL
CR
R
MIC
J901
STEREO ZOOM MIC AMP
MIC L
MIC R
S901
BUILT-IN MIC
ZOOM/STEREO
S902
FADER
FADE ON
AU-143 BOARD (See Page 157)
IC601
IC603
AUDIO I/O L, R
MIC L, R
HEADPHONE L, R
AFM AUDIO PROCESS
REC AFM
PB RF
HJ-13 BOARD
(See Page 159)
J501
PHONES


VS-98 BOARD
(See Page 123, 127, 129, 134, 137, 141)
ZOOM C
CAM Y
CAM C
DATA TO SLAVE, DATA TO MASTER, VTR SCK
M903
LOADING MOTOR
S901
MODE SWITCH
LOAD, UN LOAD
IC151
LOADING MOTOR DRIVE
IC153
MECHA CONTROL / SERVO
MSW A-C
FP-423 BOARD
(See Page 146)
S991 C.C. LOCK
C.C. LOCK
DEW SENSOR
DEW (+)
IC152 (1/2)
DEW DETECT
DEW
MECHA CONTROL
D991
TAPE LED
TAPE TOP SENSOR
Q991
H992
T REEL FG SENSOR
H991
S REEL FG SENSOR
Q992
TAPE END SENSOR
TAPE TOP
TAPE TOP DETECT
T REEL (+), (-)
T REEL FG AMP
T REEL FG
S REEL (+), (-)
S REEL FG AMP
S REEL FG
TAPE END
TAPE END DETECT
TAPE LED (K)
VIDEO, AUDIO, SERVO, CONTROL SIG
S992
HI8 MP
ME/MP
REC PROOF
HI8 MP SW
ME/MP SW
REC PROOF SW
LANC TO COSMO
COSMO TO LANC
CLOG, SP/LP DET
D PG, D FG
IC152 (1/2)
WAVE SHAPER
DRUM PG, DRUM FG
M901 DRUM MOTOR
DRUM PG, FG
IC154 (1/2)
DRUM MOTOR DRIVE
DRUM VS
DD-52 BOARD (1/2)
IC232 (1/2)
DRUM PWM DRIVE
DRUM ERROR
IC154 (1/2)
LPF
DRUM PWM
RF SWP
1/2 RF SWP
SERVO
M902 CAPSTAN MOTOR
CAPSTAN FG
IC156
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CAP VS
CAPSTAN PWM DRIVE
CAP ERROR
CAP PWM
CFG (+), (-)
(See Page 171)
CAP FG
REF PILOT
ATF ERROR
MT 5V (2)
EVF 5V
AU 5V
VID 5V
SS 5V
EVF UNREG
VTR UNREG
EVF OUT
(See Page 106)
VC-126 BOARD (1/2)
ZOOM C
IC926
SIRCS CONTROL
SIRCS
IC924
CHARACTER GENERATOR
IC927
CHIP SELECT
MODE CONTROL (MASTER)
KEY OUT 0-2, 5
KEY IN 1-5
C.C. LOCK
ZOOM/STEREO, JACK OUT/IN, FADE ON
KEY OUT 0-5
KEY IN 0-6
VTR DD ON
CAM DD ON
IC922
BACK UP VDD
BACK UP VDD SWITCH
IC925
LANC I/O
(See Page 148)
RM-54 BOARD
REMOTE CONTROL RECIEVER
IC401
(See Page 147)
FK-51 BOARD
S101, 102, 107, 109
ZOOM SWITCH
S103-106, 109-119
POWER, VTR FUNCTION SWITCH
LCD UNIT
(See Page 151)
(See Page 151)
CF-29 BOARD
S201-S219
CAMERA, VTR FUNCTION SWITCH
(See Page 151)
LITHIUM BATTERY
LI 3V
LANC SIG
J511
REMOTE
LJ-6 BOARD
(See Page 151)
DD-52 BOARD (1/2)
IC231
IC232 (1/2)
CAM DD ON
VTR DD ON
CAM 15V
CAM -9V
CAM 5V
D5V
MT 5V (1)
CAMERA DC/DC CONVERTER
VTR DC/DC CONVERTER
MAIN BATTERY
VF-42 BOARD
(See Page 167)
DY
H V
DH1, DH2
T501
HV
H
H OUT
CRT DRIVE
IC501
EVF VIDEO
G1
V901 CRT

3-3. CAMERA (1) BLOCK DIAGRAM

(See Page 111)


CD-72 BOARD
IC301
CCD IMAGER
Q303
BUFFER
Q303 ⑤
Q301, 302
V SUB REG
Q301
23V RECT
IC301 ⑮
IC301 ⑯
IC301 ③,④
IC301 ①,②
IC301 ⑬
9.44MHz
CN301
CN801
CCD OUT
V1
V2
V3
V4
PG
H2
H1
-8.5V
V SUB CHK
V SUB CONT
V SUB
15V
CAM -8.5V
CAM 15V
VC-126 BOARD
(See Page 95, 100, 103)
IC805
SIGNAL SEPARATION
AGC/IRIS CONTROL
SAMPL HOLD
AGC
CLAMP
LPF
CLAMP BLANKING
COMP
GATE
MAX
SLICE
GC
MODE SWITCH
BLANKING
WINDOW
XSHD
XSHP
AGC CONT 1
AGC CONT 2
S1 OFFSET
GY OUT
F1 OUT
F2 OUT
F3 OUT
CS OUT
AGC OUT
DET OUT
IRIS DET
IC805 ③
0.4Vp-p
IC803
A/D BIAS AMP
Q801
BUFFER
IC803 ②
A/D REF
IC804
V DRIVE
IC801
TIMING GENERATOR
X801
28.375MHz
CT801
PRIME OSCIRATION
Q802
BUFFER
1/2
IC801 ㊲
IC801 ㊼
IC801 ⑤
14.1875MHz
5.5Vp-p
5.6Vp-p
CN701
V SUB CHK
PG CONT
CAM SI
CAM SO
CAM SCK
IRIS OUT
FOR CHECK
ZOOM SW
CS EEP ROM
CS CORE
CS OPD
IC705
D/A CONVERTER (EVR)
IC703
FOCUS PRE DRIVER
IC851
FOCUS RING SENSOR PHASE DETECT
W701
CAMERA (3)
(VD-21)
CAMERA 2
CAMERA (2)
IC702
CAMERA CONTROL
IC702 ㊸
10MHz
X701
Q701
AJST
IC701
EEP ROM
(NON VOLATILE MEMORY)
IC706
OPD
Q710
4V REG
IC710 ⑭
IC710 ㊸
IC711
VTR SYNC
SYS RESET



IC803
A/D BIAS AMP
IC802
A/D CONVERTER
IC708
CAMERA CORE
(DIGITAL CAMERA PROCESS)
IC803 ②
IC803 ⑧
IC708 (86)(95)
Q801 BUFFER
CLAMP
DRIVE
VCLP
V IN H
V IN L
V REF BS
V REF B
VREF T
V REF TS
D9 (MSB)
D0 (MSB)
CLK
MCK
ADCK
A/D REF
CAM 5V
AGC CONT 1
AGC CONT 2
S1 OFFSET
0.4Vp-p
1Vp-p
3Vp-p
0.2μsec
1H DERAY
DE
TRAP
DL
HORIZONTAL APERTURE COMPENSATOR
HAP CO1
HAP CO2
BPF
GAIN SELECT
APCN LEVEL
DETALE
ROM
CORING
VH GAIN
VH SLICE
VERTICAL APERTURE COMPENSATOR
VAPCN GAIN
LPF
DELAY
INTER FACE
CORE SO
CS CORE
CORE SI
CAM SCK
CORE RESET
AJST
MCK
CL
VCK
ADCK
HD
VD
IC708 (80)
IC708 (68)
IC708 (69)
IC710 ⑭
4.5Vp-p
0.1μsec
R MATRIX B MATRIX
G/Gb WHITE BALANCE
R/B WHITE BALANCE
CHROMA GAMMA
GAMMA ROM
R-G/B-G
EFECT
SFC
HUE GAIN
R-Y/B-Y
BURST BLK ADD
ENCODER
PAL NTSC
COL
VDC
D/A CONV
CS ST CTMG
FADER OUT LEVEL
FADER
SET UP
Y GAMMA
SOLAR
WHUITE CLIP
SYNK BLK CHRACTER MIX
C SYNK
C BLK
C VDW
C VDB
TIY7
TIY0
YTMG
HHLD
BU SW
TIC7
TIC0
CD13
DDC7-DDC0
V REF Y
V REF C
IC708 (51)
IC708 (64)
IC708 (66)
IC708 (67)
IC708 (30)
12Vp-p
0.5Vp-p
Q706 BUFFER
FL701, 702 LPF
Q708 BUFFER
Q707 BUFFER
4.43MHz BPF
Q709 BUFFER
CN701 FOR CHECK
CAM Y
CAM C
VIDEO (1) (VS-98)
VTR SYNC
FSC
REG H
IC710
SYNC GENERATOR
AFC
HALF H KILLER
SPEED DETECT
PHASE COMP
PB SYNC
ENVD
PDF
XPDF
AFCI
AFCO
602fH VCO
LCK
SYNC GENERATOR
760H
510H
760H:760H CCD SYSTEM
510H:510H CCD SYSTEM
1/3 COUNTER
MOSAIC HOLD TIMING
POLAITY
PROG DELAY
1/2 (510H.CAM VTR)
1/3 (760H.CAM)
1/4 (VTR)
1/5 (PAL-CAM)
PHASE COMP
VCO 4FSC (VTR) 5/4 (PAL.CAM) OFF (NTSC.CAM)
CONTROL DATA LATCH
PB TITLE COLOR DATA
CRTC MASC
PB TITLE CHROMA MODURATOR D/A CONVERTER
IC711
IC710 (63)
0.27μsec
Q710 4V REG
IC709
TITLER
IC707
TITLE MEMORY
64K S RAM
A0 - A14
I/O 7 - I/O 0
BACKUP Vdd
Q703
CS S RAM
TITLE BUSY
CS TITLE
VTR SO
VTR SI
VTR SCK
SYS RESET
SYSCON
POWER (68-52)
D 5V
CAM 5V
CAM -9V
CAM 15V
MT 5V

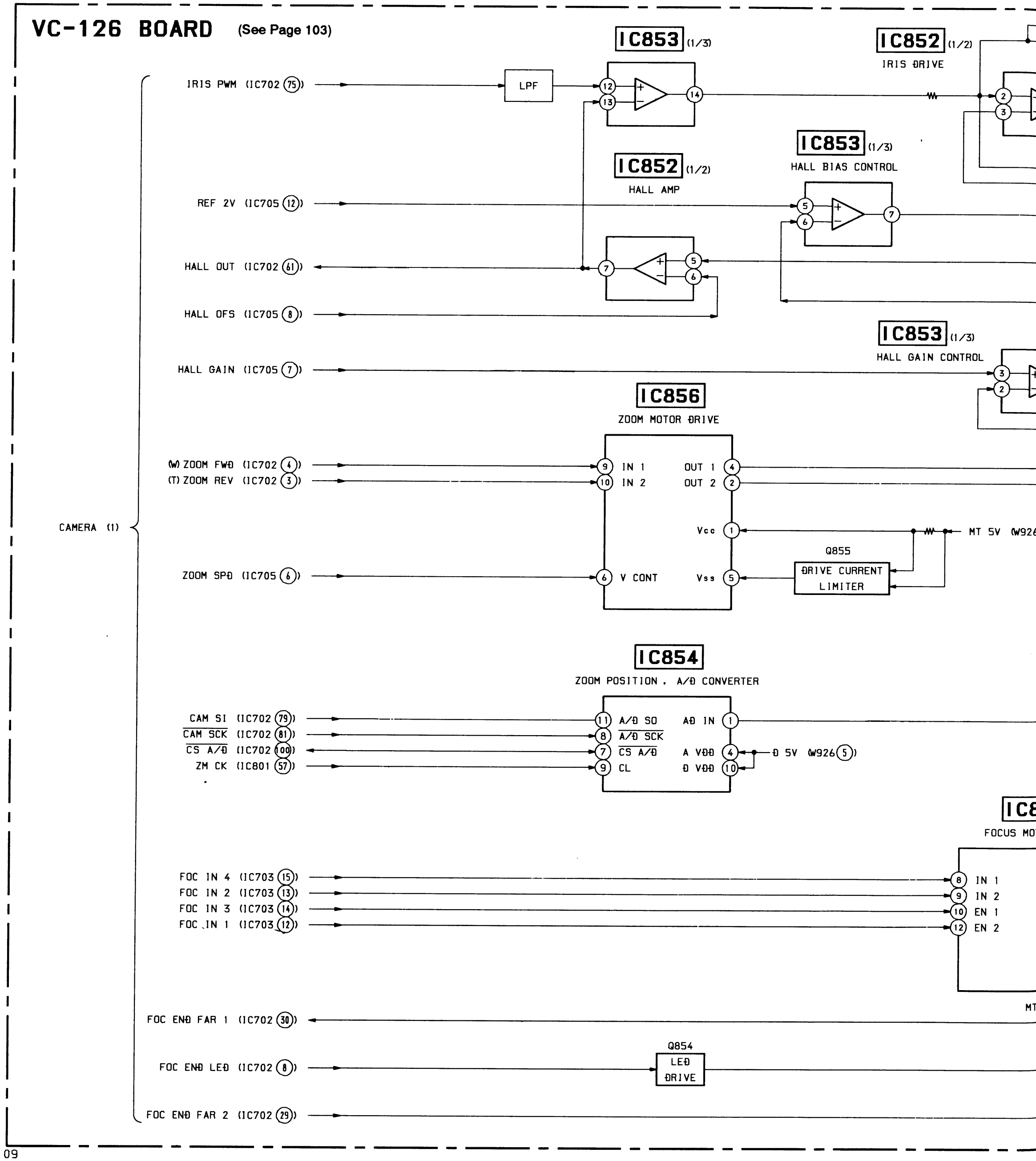
Pin No.	Signal	I/O	Function
44	$\overline{\text{CS CAM}}$	I	Chip select signal from system control microprocessor (IC924 on VC-126 board).
45	VTR SI	I	Serial data input from system control microprocessor.
46	VTR SO	O	Serial data output to system control microprocessor.
47	$\overline{\text{VTR SCK}}$	I	Serial data transfer clock.
48	PF7/AN11		Not used.
49	PF6/AN10		
50	PF5/AN9		
51	PF4		
52	AVSS		GND
53	AVREF		Analog input port reference voltage (5V).
54	AVDD		Analog input port power supply (5V).
55	PF3/AN7		Connected to GND.
56	PF2/AN6		
57	MAN FOCUS (2)	I	
58	MAN FOCUS (1)	I	
59	ZOOM SW	I	Zoom key input. 4.8V: F. TELE, 3.6V and 0V: F. WIDE, 1.2V and 2.3V: no input.
60	ZOOM POS X4	I	Connected to GND.
61	HALL A/D	I	Hall voltage. approx. 1V (iris open) to approx. 3V (iris close).
62	ZOOM POSITION A/D	I	Connected to GND.
63	PG7/EX11		Connected to +5V.
64	PB V	I	V SYNC from mechanism control microprocessor (IC153 on VS-98 board).
65	PG5/SYNC1		Not used.
66	VTR SYNC		
67	PB CTL		
68	DPG		
69	FOC FG		
70	AF BUSY	I	AF busy signal from OPD IC (IC706 on VC-126 board).
71	PE7/DAB1		Not used.
72	PE6/DAB0		
73	PE5/DAA1		
74	PE4/DAA0		
75	IRIS PWM	O	Iris control signal. 25.5 µsec period PWM signal.
76	ZP PWM	O	Not used.
77	FOCUS PULSE	I	Signal indicating focus ring rotation. Normally "L". "H" pulse when focus ring is rotated.
78	VD	I	Connected to +5V.
79	CAM SI	I	Serial data input.
80	CAM SO	O	Serial data output.
81	$\overline{\text{CAM SCK}}$	O	Serial data transfer clock.
82	AJST	I	Timing pulse input for adjusting from SYNC generator (IC710 on VC-126 board). Normally "H".
83	PI/TO		Not used.
84	PI/PWM		
85	PI/PO		
86	PI O		Connected to +5V.
87	PKO		
88	GND		GND
89	VDD		+5V power supply
90	VPP		
91	$\overline{\text{CS VAP}}$	O	Chip select signal to VAP microprocessor (IC002 on VD-21 board).
92	$\overline{\text{CS PDR}}$	O	Chip select signal to focus predriver (IC703 on VC-126 board).

3-4. CAMERA MICROPROCESSOR PIN FUNCTION (IC702 ON VC-126 BOARD: CXP80624-297Q)

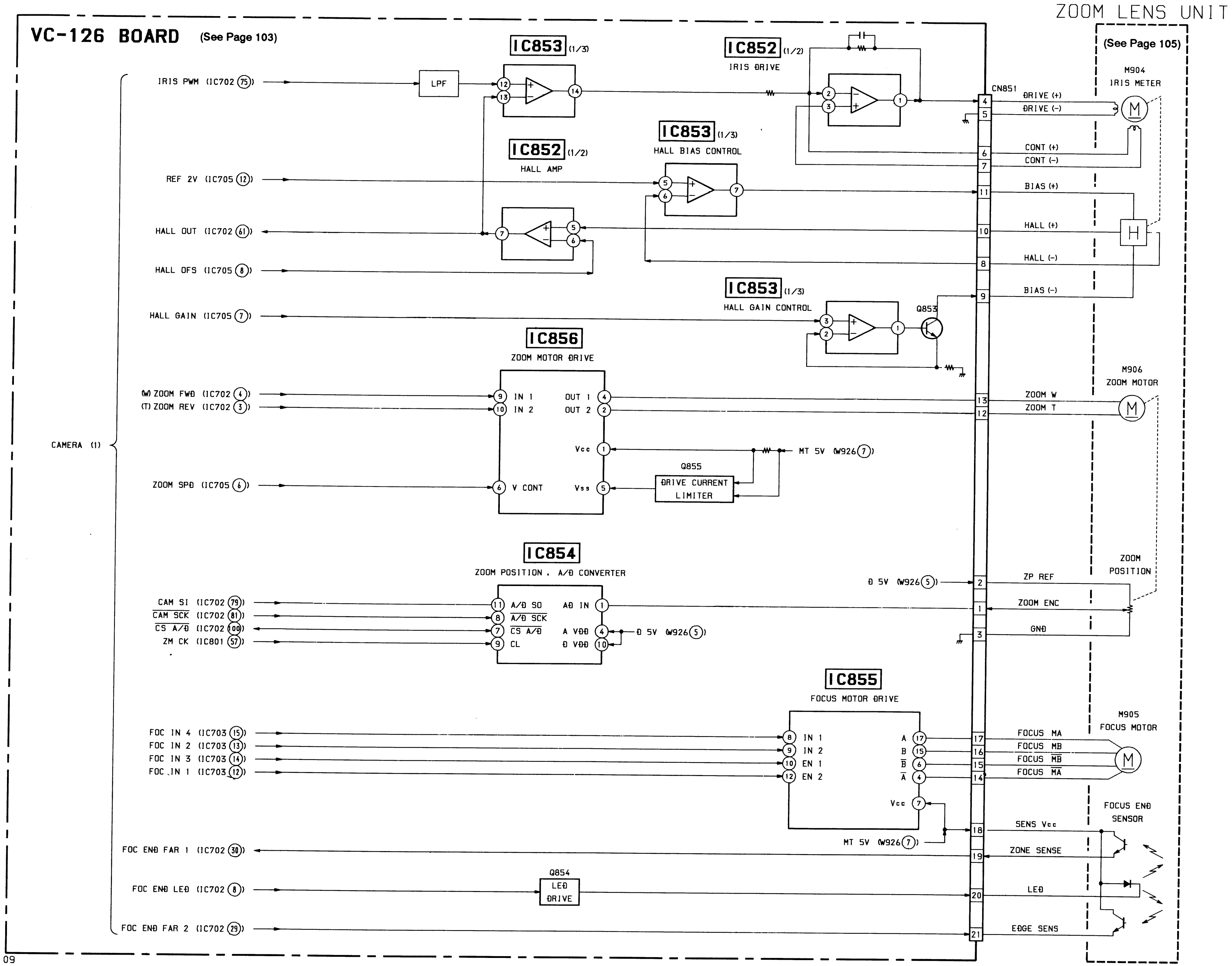
Pin No.	Signal	I/O	Function
1	A/D STBY	O	Not used.
2	EPROM SCK	O	
3	ZOOM M REV	O	Zoom motor control signal. Normally "H". 20 msec period PWM signal when rotating to WIDE.
4	ZOOM M FWD	O	Zoom motor control signal. Normally "H". 20 msec period PWM signal when rotating to TELE.
5	PB1		Not used.
6	PB0		
7	MF LED	O	ON/OFF signal of LED for focus ring rotation detection. "L": Manual focus. "H": Auto-focus.
8	FOC END LED	O	ON/OFF signal for focus end detection. Instantaneously "H" when camera power supply is turned on. Normally "L".
9	$\overline{\text{VAP RESET}}$	O	VAP microprocessor (IC002 on VD-21 board) reset signal. Normally "H".
10	$\overline{\text{CORE RESET}}$	O	Camera core (IC708 on VC-126 board) reset signal. Normally "H". "L" when reset.
11	PDR RESET	O	Focus predriver (IC703 on VC-126 board) reset signal. Normally "H". "L" when reset.
12			Not used.
13	TG SYBY 0		
14	$\overline{\text{OPD RESET}}$	O	OPD (IC706 on VC-103 board) reset signal. "H": camera mode. "L": VTR mode.
15	PJ7/FSEL31		Not used.
16	PJ6/FSEL30		
17	PJ5/FSEL21		
18	PJ4/FSEL20		
19	PJ3/FSEL11		
20	PJ2/FSEL10		
21	PJ1/FSEL01		
22	PJ0/FSEL00		
23	EPROM DO		Connected to +5V.
24	$\overline{\text{EPROM BUSY}}$	I	BUSY signal from EEPROM (IC701 on VC-126 board). Normally "H". "L" pulse when data reading/writing.
25			Not used.
26			
27	PD3/C		Connected to +5V.
28	MF DIR	I	Signal indicating focus ring rotation direction. "H" when rotated towards WIDE side. "L" when rotated towards TELE side.
29	FOC END FAR 2	I	Focus end FAR 2 sensor input. Normally "L". Instantaneously "H" when camera power supply is turned on.
30	FOC END FAR 1	I	Focus end FAR 1 sensor input. Normally "L". Instantaneously "H" when camera power supply is turned on.
31	$\overline{\text{CAM ON}}$	O	Not used.
32	PH6		
33	PH5		
34	PH4		
35	PH3		
36	PH2		
37	PH1		
38	FOC END LED	O	
39	MP		Connected to GND.
40	$\overline{\text{CAM RESET}}$	I	Reset signal input. Normally "H". "L" when reset.
41	VSS		GND
42	XTAL	O	10 MHz clock oscillation circuit.
43	EXTAL	I	

Pin No.	Signal	I/O	Function
93	$\overline{\text{CS CAM D/A}}$	O	Chip select signal to camera EVR (IC705 on VC-126 board).
94	CS ROM	O	Chip select signal to EEPROM (IC701 on VC-126 board).
95	$\overline{\text{CS OPD}}$	O	Chip select signal to OPD (IC706 on VC-126 board).
96	$\overline{\text{NTSC}}$	O	NTSC: "L", PAL: "H".
97	$\overline{\text{CS CORE}}$	O	Chip select signal to camera core (IC708 on VC-126 board).
98	$\overline{\text{CS TG}}$	O	Chip select signal to timing generator (IC801 on VC-126 board).
99	J STB		Not used.
100	$\overline{\text{CS A/D}}$	O	Chip select signal to zoom position A/D converter (IC854 on VC-126 board).

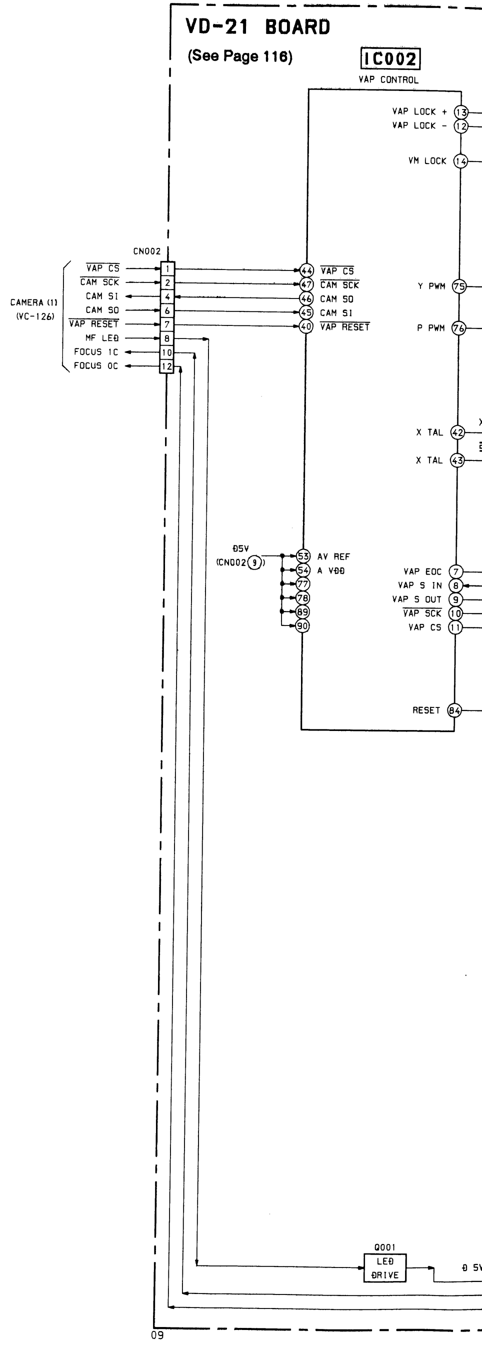
3-5. CAMERA (2) BLOCK DIAGRAM


VC-126 BOARD (See Page 103)
CAMERA (1)
IRIS PWM (IC702 75)
REF 2V (IC705 12)
HALL OUT (IC702 61)
HALL OFS (IC705 8)
HALL GAIN (IC705 7)
(W) ZOOM FWD (IC702 4)
(T) ZOOM REV (IC702 3)
ZOOM SPD (IC705 6)
CAM SI (IC702 79)
CAM SCK (IC702 81)
CS A/D (IC702 100)
ZM CK (IC801 57)
FOC IN 4 (IC703 15)
FOC IN 2 (IC703 13)
FOC IN 3 (IC703 14)
FOC IN 1 (IC703 12)
FOC END FAR 1 (IC702 30)
FOC END LED (IC702 8)
FOC END FAR 2 (IC702 29)
LPF
IC853 (1/3)
IC852 (1/2)
IRIS DRIVE
IC853 (1/3)
HALL BIAS CONTROL
IC852 (1/2)
HALL AMP
IC853 (1/3)
HALL GAIN CONTROL
IC856
ZOOM MOTOR DRIVE
IN 1
IN 2
OUT 1
OUT 2
Vcc
V CONT
Vss
MT 5V (W926
Q855
DRIVE CURRENT LIMITER
IC854
ZOOM POSITION . A/D CONVERTER
A/D SO
A/D SCK
CS A/D
CL
AD IN
A VDD
D VDD
D 5V (W926 5)
IC8
FOCUS MO
IN 1
IN 2
EN 1
EN 2
MT
Q854
LED DRIVE
09

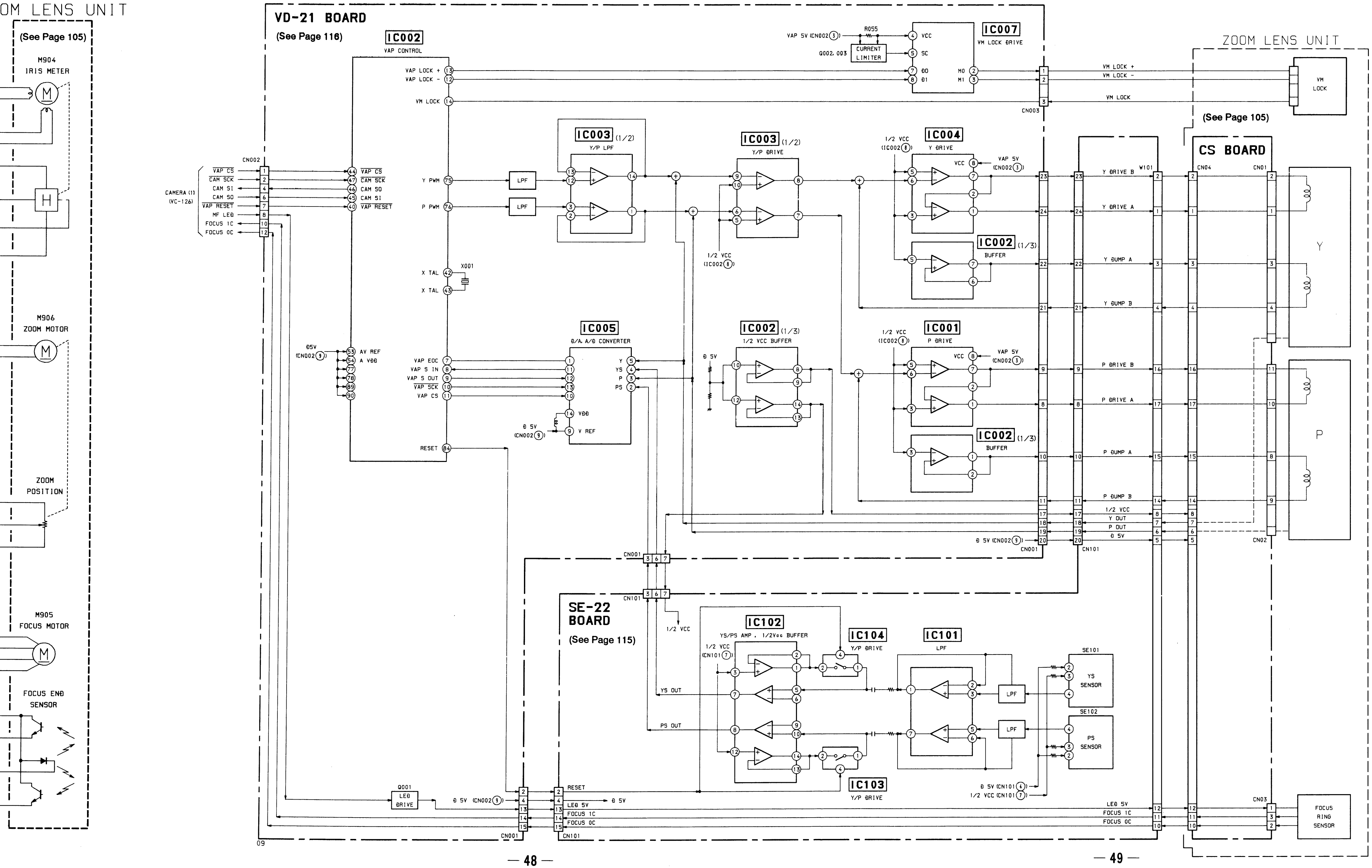
3-5. CAMERA (2) BLOCK DIAGRAM


VC-126 BOARD
(See Page 103)
ZOOM LENS UNIT
(See Page 105)
CAMERA (1)
IRIS PWM (IC702 (75))
LPF
IC853 (1/3)
IC852 (1/2)
IRIS DRIVE
CN851
DRIVE (+)
DRIVE (−)
M904
IRIS METER
M
IC852 (1/2)
HALL AMP
IC853 (1/3)
HALL BIAS CONTROL
CONT (+)
CONT (−)
REF 2V (IC705 (12))
BIAS (+)
HALL OUT (IC702 (61))
HALL (+)
H
HALL (−)
HALL OFS (IC705 (8))
IC853 (1/3)
HALL GAIN CONTROL
Q853
BIAS (−)
HALL GAIN (IC705 (7))
IC856
ZOOM MOTOR DRIVE
M906
ZOOM MOTOR
(W) ZOOM FWD (IC702 (4))
(T) ZOOM REV (IC702 (3))
IN 1
IN 2
OUT 1
OUT 2
ZOOM W
ZOOM T
Vcc
MT 5V (W926 (7))
Q855
DRIVE CURRENT LIMITER
ZOOM SPD (IC705 (6))
V CONT
Vss
IC854
ZOOM POSITION. A/D CONVERTER
D 5V (W926 (5))
ZP REF
ZOOM POSITION
ZOOM ENC
GND
CAM SI (IC702 (79))
CAM SCK (IC702 (81))
CS A/D (IC702 (100))
ZM CK (IC801 (57))
A/D SO
A/D SCK
CS A/D
CL
AD IN
A VDD
D VDD
D 5V (W926 (5))
IC855
FOCUS MOTOR DRIVE
M905
FOCUS MOTOR
FOC IN 4 (IC703 (15))
FOC IN 2 (IC703 (13))
FOC IN 3 (IC703 (14))
FOC IN 1 (IC703 (12))
IN 1
IN 2
EN 1
EN 2
A
B
B
A
FOCUS MA
FOCUS MB
FOCUS MB
FOCUS MA
Vcc
FOCUS END SENSOR
SENS Vcc
MT 5V (W926 (7))
FOC END FAR 1 (IC702 (30))
ZONE SENSE
Q854
LED DRIVE
FOC END LED (IC702 (8))
LED
FOC END FAR 2 (IC702 (29))
EDGE SENS
09

3-6. CAMERA (3) BLOCK DIAGRAM

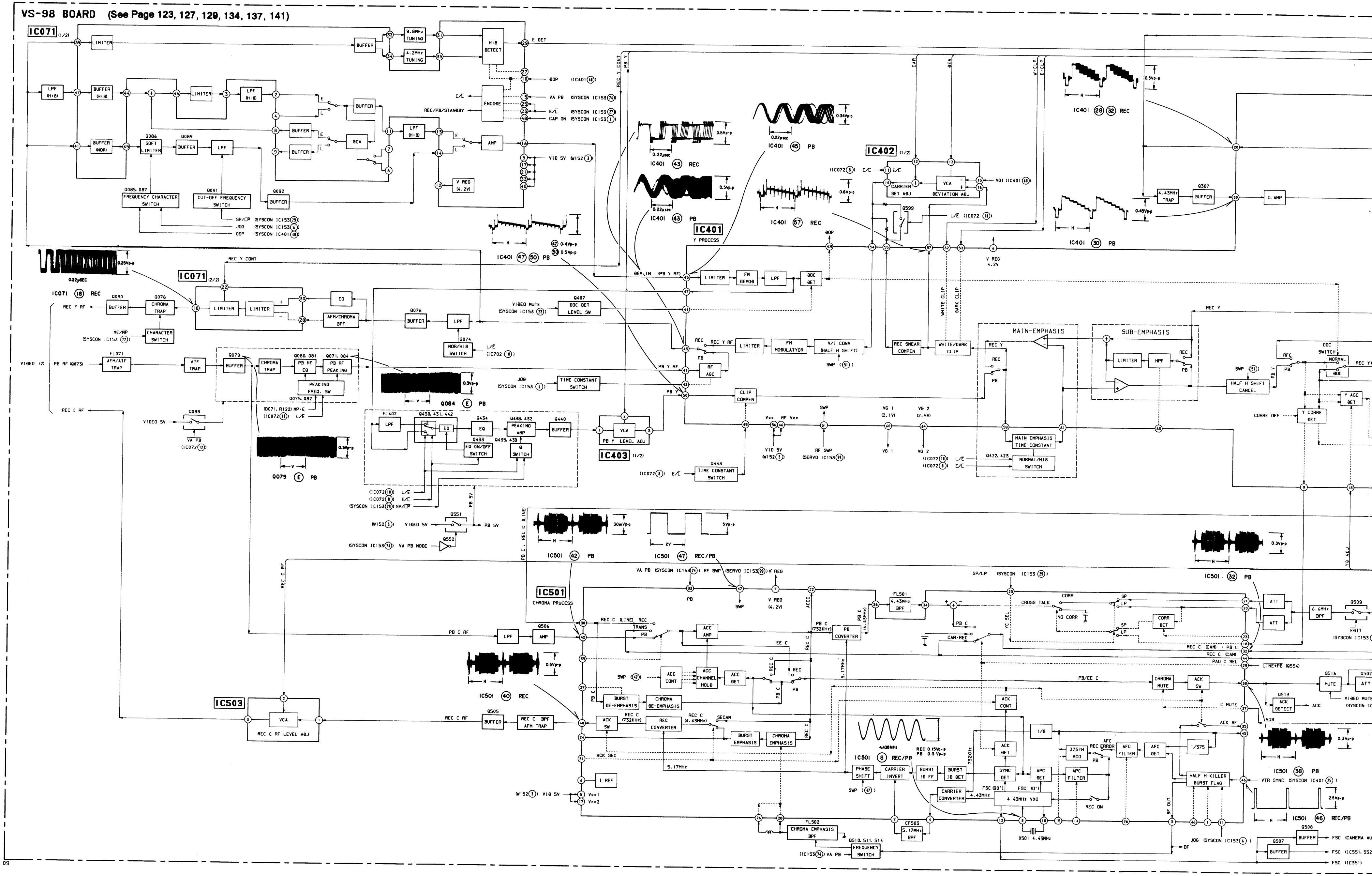

VD-21 BOARD
(See Page 116)
IC002
VAP CONTROL
VAP LOCK +
VAP LOCK −
VM LOCK
CN002
CAMERA (1) (VC-126)
VAP CS
CAM SCK
CAM SI
CAM SO
VAP RESET
MF LED
FOCUS 1C
FOCUS 0C
VAP CS
CAM SCK
CAM SO
CAM SI
VAP RESET
Y PWM
P PWM
X TAL
X TAL
D5V (CN002 (9))
AV REF
A VDD
VAP EOC
VAP S IN
VAP S OUT
VAP SCK
VAP CS
RESET
Q001
LED DRIVE
D 5V
09

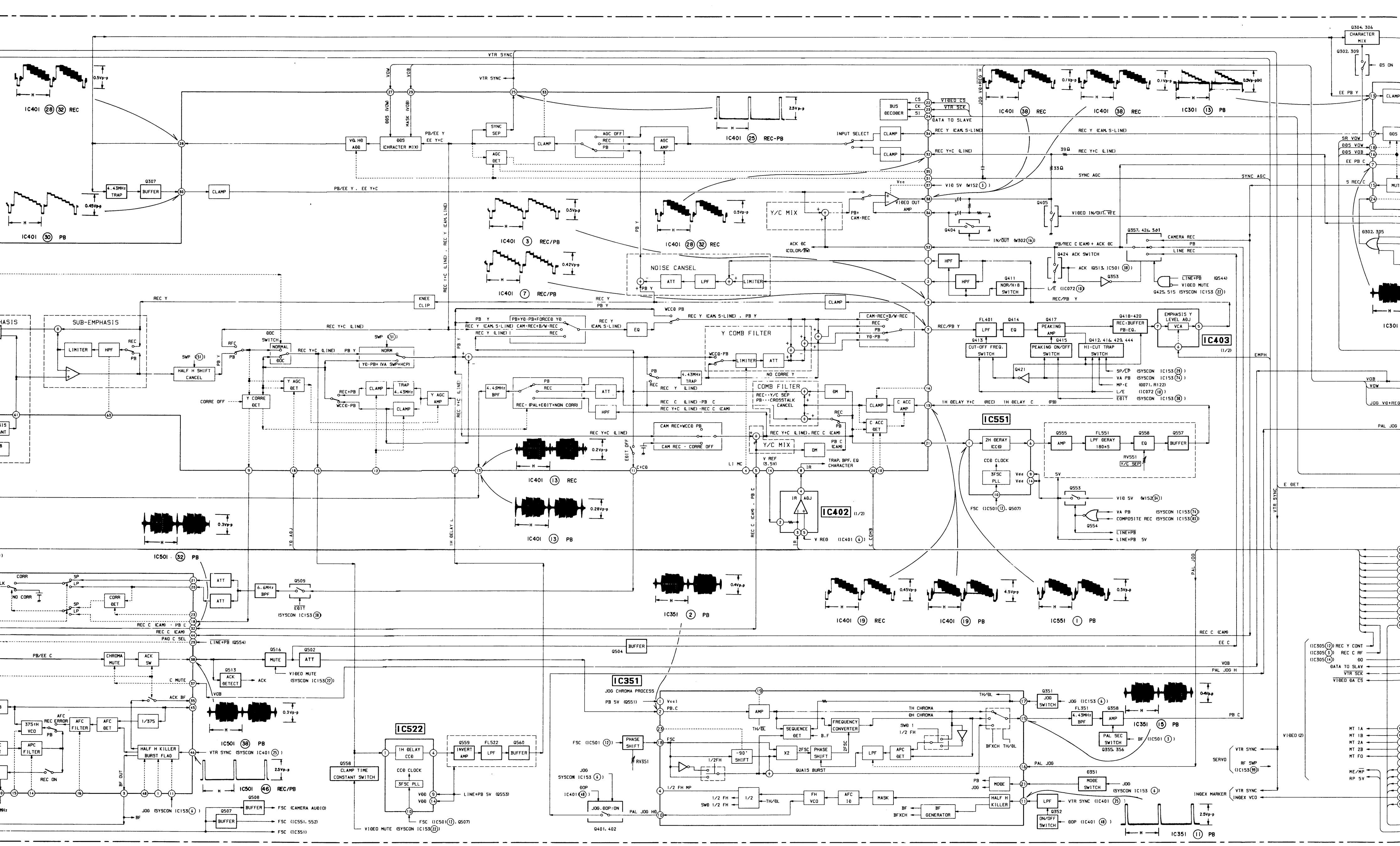
3-6. CAMERA (3) BLOCK DIAGRAM

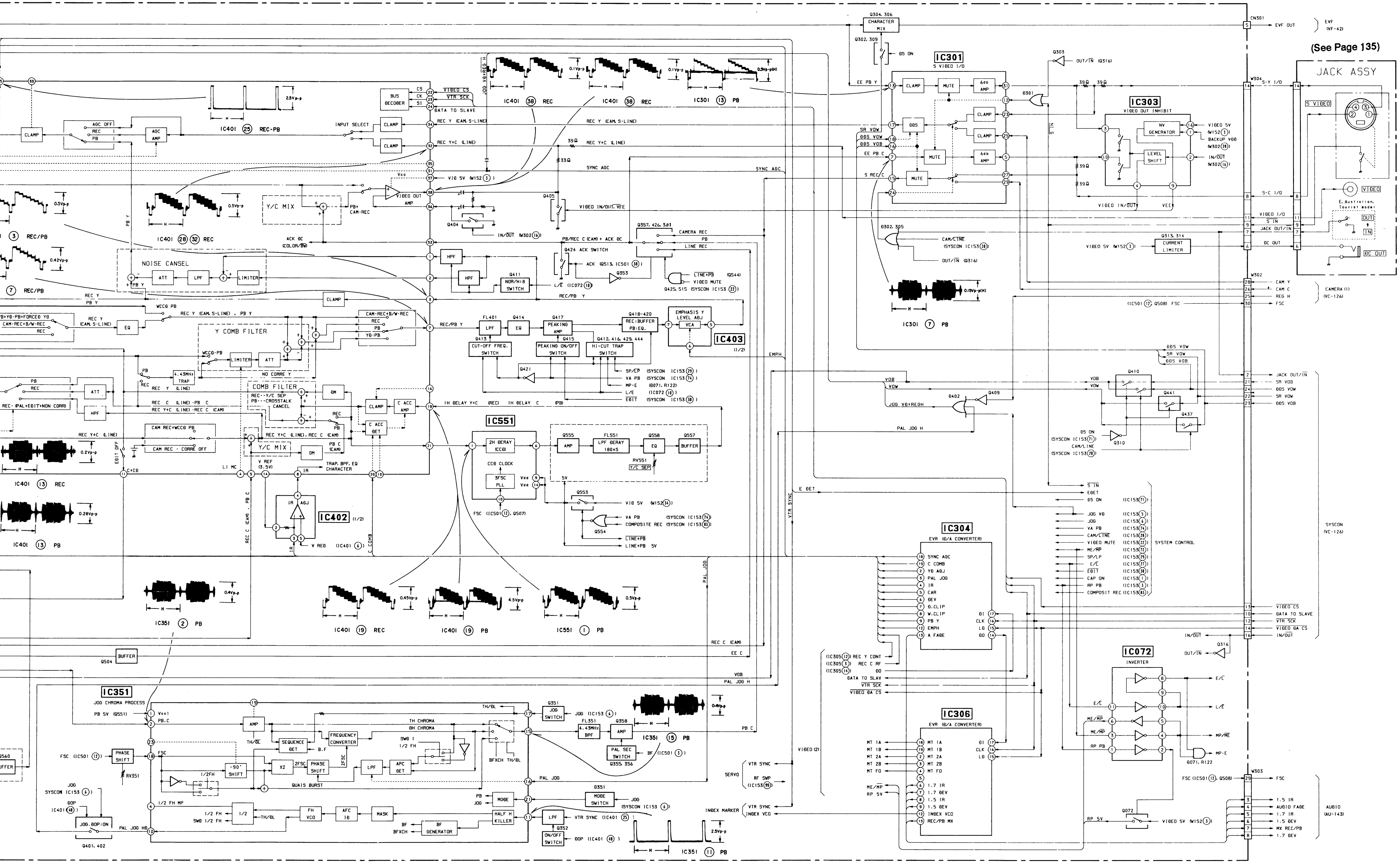


OM LENS UNIT
(See Page 105)
M904
IRIS METER
H
M906
ZOOM MOTOR
ZOOM POSITION
M905
FOCUS MOTOR
FOCUS END SENSOR
VD-21 BOARD
(See Page 116)
IC002
VAP CONTROL
VAP LOCK +
VAP LOCK −
VM LOCK
CAMERA (1) (VC-126)
CN002
VAP CS
CAM SCK
CAM SI
CAM SO
VAP RESET
MF LED
FOCUS IC
FOCUS OC
Y PWM
P PWM
LPF
X TAL
X001
Ð5V (CN002 ⑨)
AV REF
A VDD
VAP EOC
VAP S IN
VAP S OUT
VAP SCK
VAP CS
RESET
IC003 (1/2)
Y/P LPF
IC003 (1/2)
Y/P DRIVE
1/2 VCC (IC002 ⑧)
IC005
D/A A/D CONVERTER
VDD
V REF
Ð 5V (CN002 ⑨)
IC002 (1/3)
1/2 VCC BUFFER
Ð 5V
VAP 5V (CN002 ③)
R055
CURRENT LIMITER
Q002, 003
IC007
VM LOCK DRIVE
VCC
SC
D0
D1
M0
M1
CN003
IC004
Y DRIVE
VAP 5V (CN002 ③)
IC002 (1/3)
BUFFER
IC001
P DRIVE
IC002 (1/3)
BUFFER
Ð 5V (CN002 ⑨)
CN001
W101
Y DRIVE B
Y DRIVE A
Y DUMP A
Y DUMP B
P DRIVE B
P DRIVE A
P DUMP A
P DUMP B
1/2 VCC
Y OUT
P OUT
Ð 5V
CN101
ZOOM LENS UNIT
VM LOCK +
VM LOCK −
VM LOCK
VM LOCK
(See Page 105)
CS BOARD
CN04
CN01
Y
P
CN02
SE-22 BOARD
(See Page 115)
1/2 VCC
IC102
YS/PS AMP, 1/2Vcc BUFFER
1/2 VCC (CN101 ⑦)
YS OUT
PS OUT
IC104
Y/P DRIVE
IC103
Y/P DRIVE
IC101
LPF
LPF
SE101
YS SENSOR
SE102
PS SENSOR
Ð 5V (CN101 ④)
1/2 VCC (CN101 ⑦)
Q001
LED DRIVE
Ð 5V (CN002 ⑨)
RESET
LED 5V
FOCUS IC
FOCUS OC
Ð 5V
LED 5V
FOCUS IC
FOCUS OC
CN03
FOCUS RING SENSOR
09

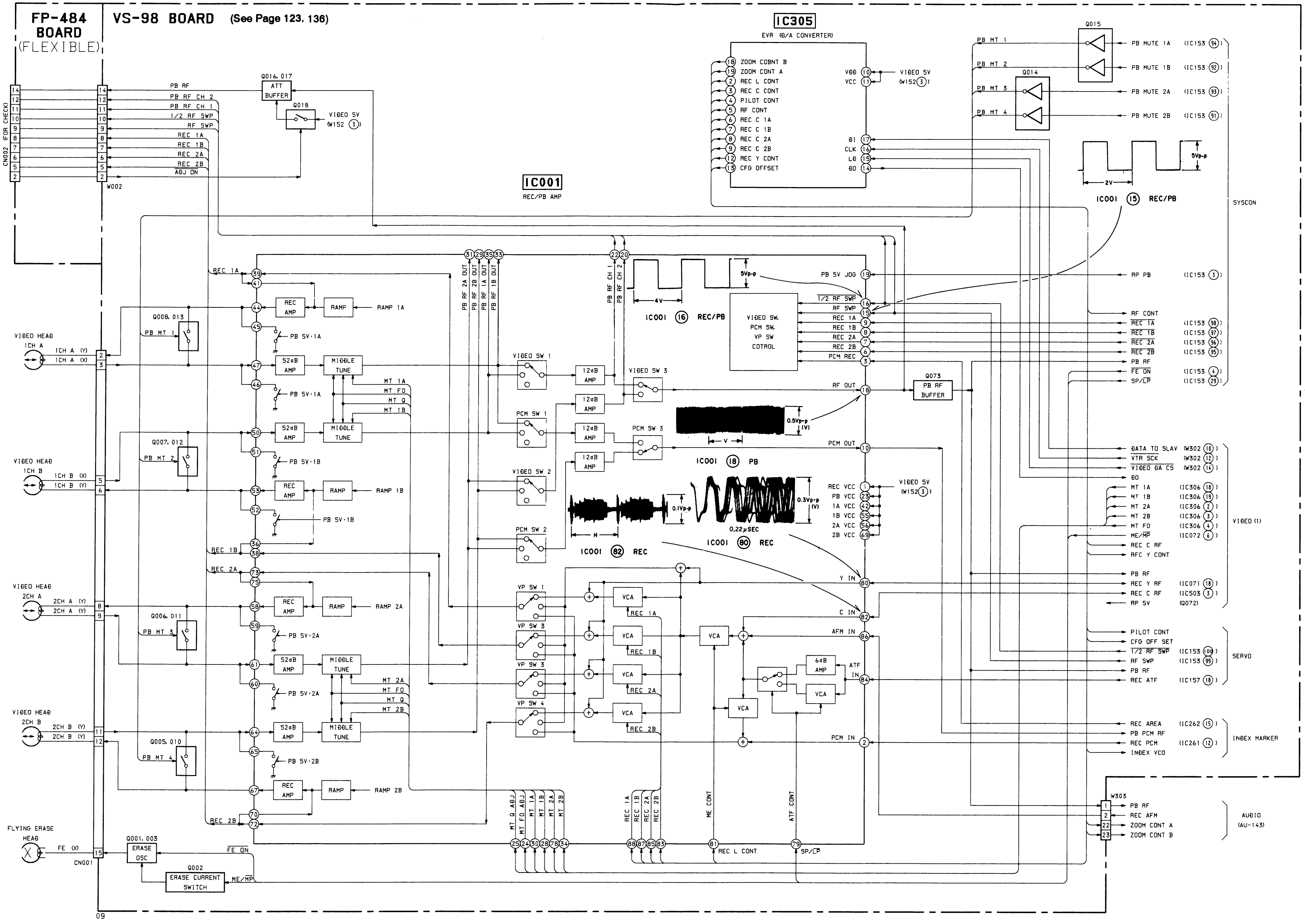
3-7. VIDEO (1) BLOCK DIAGRAM


VS-98 BOARD (See Page 123, 127, 129, 134, 137, 141)
IC071 (1/2)
LIMITER
BUFFER
9.8MHz TUNING
4.2MHz TUNING
H18 DETECT
E DET
LPF (H18)
BUFFER (H18)
LIMITER
LPF (H18)
ENCODE
BUFFER (NOR)
Q086 SOFT LIMITER
Q089 BUFFER
LPF
GCA
AMP
V REG (4.2V)
Q085, 087 FREQUENCY CHARACTER SWITCH
Q091 CUT-OFF FREQUENCY SWITCH
Q092 BUFFER
DOP (IC401 (48))
VA PB (SYSCON IC153 (74))
E/L (SYSCON IC153 (27))
CAP ON (SYSCON IC153 (1))
REC/PB/STANDBY
V10 5V (W152 (3))
SP/LP (SYSCON IC153 (29))
JOG (SYSCON IC153 (6))
DOP (SYSCON IC401 (48))
IC071 (18) REC
0.25Vp-p
0.22μSEC
IC071 (2/2)
REC Y CONT
REC Y RF
Q090 BUFFER
Q078 CHROMA TRAP
CHARACTER SWITCH
ME/MP (SYSCON IC153 (72))
LIMITER
EQ
AFM/CHROMA BPF
VIDEO (2)
PB RF (Q073)
FL071 AFM/ATF TRAP
ATF TRAP
Q079 BUFFER
CHROMA TRAP
Q080, 081 PB RF EQ
Q071, 084 PB RF PEAKING
PEAKING FREQ. SW
Q075, 082
(Q071, R122) MP-E (IC072 (18)) L/E
REC C RF
Q088
VIDEO 5V
VA PB (IC072 (7))
Q079 (E) PB
Q084 (E) PB
Q076 BUFFER
LPF
Q074 NOR/H18 SWITCH
L/E (IC702 (18))
FL402 LPF
Q430, 431, 442 EQ
Q434 EQ
Q433 EQ ON/OFF SWITCH
Q438, 432 PEAKING AMP
Q435, 439 Q SWITCH
Q440 BUFFER
(IC072 (18)) L/E
(IC072 (8)) E/L
(SYSCON IC153 (29)) SP/LP
PB 5V
Q551
(W152 (3)) VIDEO 5V
Q552
(SYSCON IC153 (74)) VA PB MODE
VIDEO MUTE (SYSCON IC153 (22))
Q407 DOC DET LEVEL SW
JOG (SYSCON IC153 (6))
TIME CONSTANT SWITCH
IC401 (47) (50) PB
IC401 (43) REC
IC401 (43) PB
IC401 (45) PB
IC401 (57) REC
IC401 Y PROCESS
DEM IN (PB Y RF)
LIMITER
FM DEMOD
LPF
DOC DET
REC Y RF
FM MODULATOR
V/I CONV (HALF H SHIFT)
SWP (51)
RF AGC
PB Y RF
CLIP COMPEN
VCA
PB Y LEVEL ADJ
IC403 (1/2)
Q443 TIME CONSTANT SWITCH
(IC072 (8)) E/L
REC SMEAR COMPEN
WHITE/DARK CLIP
MAIN-EMPHASIS
SUB-EMPHASIS
LIMITER
HPF
MAIN EMPHASIS TIME CONSTANT
Q422, 423 NORMAL/H18 SWITCH
IC402 (1/2)
CARRIER SET ADJ
VCA DEVIATION ADJ
VG1 (IC401 (46))
Q599
L/E (IC072 (18))
V REG 4.2V
VG 1 (2.1V)
VG 2 (2.5V)
V10 5V (W152 (3))
RF SWP (SERVO IC153 (91))
IC401 (28) (32) REC
IC401 (30) PB
4.43MHz TRAP
Q307 BUFFER
CLAMP
REC Y
DOC SWITCH
NORMAL
DOC
HALF H SHIFT CANCEL
Y AGC DET
Y CORRE DET
CORRE OFF
IC501 (42) PB
IC501 (47) REC/PB
IC501 CHROMA PROCESS
VA PB (SYSCON IC153 (74)) RF SWP (SERVO IC153 (99)) V REG
REC C (LINE)
ACC AMP
PB C (732KHz)
PB COVERTER
FL501 4.43MHz BPF
CROSS TALK
CORR
NO CORR
CORR DET
CAM-REC
ATT
6.6MHz BPF
Q509
EDIT (SYSCON IC153)
IC501 (32) PB
LPF
Q506 AMP
PB C RF
IC501 (40) REC
ACC CONT
ACC CHANNEL HOLD
ACC DET
BURST DE-EMPHASIS
CHROMA DE-EMPHASIS
IC503
VCA
REC C RF LEVEL ADJ
Q505 BUFFER
REC C BPF AFM TRAP
ACK SW
REC CONVERTER
BURST EMPHASIS
CHROMA EMPHASIS
ACK SEC
5.17MHz
I REF
(W152 (3)) V10 5V Vcc1 Vcc2
FL502 CHROMA EMPHASIS BPF
Q510, 511, 514 FREQUENCY SWITCH
(IC153 (74)) VA PB
IC501 (8) REC/PB
4.43MHz
REC 0.15Vp-p PB 0.3Vp-p
PHASE SHIFT
CARRIER INVERT
BURST ID FF
BURST ID DET
SWP (47)
CF503 5.17MHz BPF
CARRIER CONVERTER
ACK CONT
ACK DET
SYNC DET
APC DET
APC FILTER
375fH VCO
AFC FILTER
AFC DET
1/8
1/375
4.43MHz VXO
X501 4.43MHz
REC ON
HALF H KILLER BURST FLAG
CHROMA MUTE
ACK SW
Q513 ACK DETECT
Q516 MUTE
Q502 ATT
VIDEO MUTE (SYSCON IC
C MUTE
ACK BF
IC501 (38) PB
VTR SYNC (SYSCON IC401 (25))
IC501 (46) REC/PB
JOG (SYSCON IC153 (6))
BF
Q508 BUFFER
Q507 BUFFER
FSC (CAMERA
FSC (IC551, 552
FSC (IC351)
09


IC401 (28) (32) REC
IC401 (30) PB
0.5Vp-p
0.45Vp-p
4.43MHz TRAP
Q307 BUFFER
CLAMP
PB/EE Y, EE Y+C
VTR SYNC
VQ HD ADD
DDS (CHRACTER MIX)
PB/EE Y EE Y+C
SYNC SEP
AGC DET
CLAMP
AGC OFF
REC
PB
AGC AMP
IC401 (25) REC-PB
2.5Vp-p
BUS DECODER
CS
CK
SI
VIDEO CS
VTR SCK
DATA TO SLAVE
INPUT SELECT
CLAMP
REC Y (CAM, S-LINE)
REC Y+C (LINE)
IC401 (3) REC/PB
IC401 (7) REC/PB
IC401 (28) (32) REC
Y/C MIX
PB+ CAM·REC
VIDEO OUT AMP
V10 5V (M152 (3))
Q404
Q405
IN/OUT (M302 (16))
VIDEO IN/OUT, VEE
ACK DC (COLOR/BW)
NOISE CANSEL
ATT
LPF
LIMITER
SYNC AGC
HPF
Q411 NOR/Hi8 SWITCH
Q424 ACK SWITCH
Q353
Q357, 426, 501
CAMERA REC
PB
LINE REC
PB/REC C (CAM) + ACK DC
LINE+PB (Q544)
VIDEO MUTE
Q425, 515 (SYSCON IC153 (22))
IC401 (38) REC
IC301 (13) PB
Q304, 306 CHARACTER MIX
Q302, 309
OS ON
EE PB Y
SR VDW
DDS VDW
DDS VDB
EE PB C
S REC C
Q302, 305
SUB-EMPHASIS
LIMITER
HPF
REC
PB
HALF H SHIFT CANCEL
SWP (51)
RFC
DOC SWITCH
NORMAL
DOC
Y CORRE DET
Y AGC DET
CORRE OFF
CLAMP
TRAP 4.43MHz
Y AGC AMP
REC+PB
WCCO·PB
NORM
YO·PB+ (VA SWP+HCP)
KNEE CLIP
REC Y
PB Y
PB Y
REC Y (CAM, S-LINE)
REC Y (LINE)
PB+YO·PB+FORCED YO
CAM·REC+B/W·REC
REC
EQ
WCCO PB
REC Y (CAM, S-LINE), PB Y
Y COMB FILTER
WCCO·PB
LIMITER
ATT
4.43MHz TRAP
NO CORRE Y
CAM·REC+B/W·REC
REC
PB
YO·PB
4.43MHz BPF
REC· (PAL+EDIT+NON CORR)
ATT
HPF
COMB FILTER
REC··Y/C SEP
PB···CROSSTALK CANCEL
DM
C ACC AMP
C ACC DET
REC C (LINE)·PB C
REC Y+C (LINE)·REC C (CAM)
REC Y+C (LINE)
CAM REC+WCCO PB
CAM REC · CORRE OFF
REC Y+C (LINE), REC C (CAM)
Y/C MIX
DM
PB C (CAM)
TRAP, BPF, EQ CHARACTER
V REF (3.5V)
IR
IR ADJ
IC402 (1/2)
V REG (IC401 (4))
REC/PB Y
FL401 LPF
Q414 EQ
Q417 PEAKING AMP
Q418-420 REC:BUFFER PB:EQ.
EMPHASIS Y LEVEL ADJ VCA
IC403 (1/2)
Q413 CUT-OFF FREQ. SWITCH
Q415 PEAKING ON/OFF SWITCH
Q412, 416, 429, 444 HI-CUT TRAP SWITCH
Q421
SP/LP (SYSCON IC153 (29))
VA PB (SYSCON IC153 (74))
MP·E (D071, R122)
L/E (IC072 (18))
EDIT (SYSCON IC153 (38))
1H DELAY Y+C (REC) 1H DELAY C (PB)
IC551
2H DERAY (CCD)
CCD CLOCK
3FSC PLL
Q555 AMP
FL551 LPF DERAY 180+S
Q558 EQ
Q557 BUFFER
RV551 Y/C SEP
FSC (IC501 (12), Q507)
Q553
V10 5V (M152 (34))
VA PB (SYSCON IC153 (74))
COMPOSITE REC (SYSCON IC153 (83))
Q554
LINE+PB
LINE+PB 5V
IC401 (13) REC
IC401 (13) PB
0.2Vp-p
0.28Vp-p
0.3Vp-p
EMPH
VOB
VDW
JOG VO+REG
PAL JOG
E DET
VTR SYNC
PAL JOG
YO ADJ
1H DELAY L
REC C (CAM), PB C
C COMB
EDIT OFF
C+CO
LI MC
IC501 (32) PB
CORR
SP
LP
NO CORR
CORR DET
ATT
6.6MHz BPF
Q509
EDIT (SYSCON IC153 (38))
REC C (CAM) · PB C
REC C (CAM)
PAO C SEL
LINE+PB (Q554)
IC351 (2) PB
0.4Vp-p
IC401 (19) REC
IC401 (19) PB
IC551 (1) PB
0.45Vp-p
4.5Vp-p
0.5Vp-p
PB/EE C
CHROMA MUTE
ACK SW
Q516 MUTE
Q502 ATT
VIDEO MUTE (SYSCON IC153 (22))
Q513 ACK DETECT
ACK
C MUTE
ACK BF
VOB
Q504 BUFFER
REC C (CAM)
EE C
VOB
PAL JOG H
375fH VCO
AFC ERROR
PB
AFC FILTER
AFC DET
1/375
APC FILTER
REC ON
HALF H KILLER BURST FLAG
VTR SYNC (SYSCON IC401 (25))
IC501 (38) PB
IC501 (46) REC/PB
BF OUT
JOG (SYSCON IC153 (6))
BF
Q508 BUFFER
Q507 BUFFER
FSC (CAMERA AUDIO)
FSC (IC551, 552)
FSC (IC351)
Q558 CLAMP TIME CONSTANT SWITCH
IC522
1H DELAY CCD
CCD CLOCK
3FSC PLL
Q559 INVERT AMP
FL522 LPF
Q560 BUFFER
LINE+PB 5V (Q553)
FSC (IC501 (12), Q507)
VIDEO MUTE (SYSCON IC153 (22))
IC351
JOG CHROMA PROCESS
PB 5V (Q551)
PB.C
FSC (IC501 (12))
PHASE SHIFT
RV351
JOG SYSCON IC153 (6)
DDP IC401 (48)
JOG, DOP:ON
Q401, 402
PAL JOG HD
AMP
TH/DL
SEQUENCE DET
B.F
FREQUENCY CONVERTER
TH CHROMA
DH CHROMA
SWD 1
1/2 FH
-90° SHIFT
1/2FH
X2
2FSC
PHASE SHIFT
LPF
APC DET
QUAIS BURST
1/2 FH MP
1/2 FH
SWD 1/2 FH
1/2
FH VCO
AFC 10
MASK
BF
BFXCH
BF GENERATOR
HALF H KILLER
BFXCH
TH/DL
PAL JOG
MODE
PB
JOG
Q351 JOG SWITCH
JOG (IC153 (6))
FL351 4.43MHz BPF
Q358 AMP
PAL SEC SWITCH
Q355, 356
BF (IC501 (3))
IC351 (15) PB
Q351 MODE SWITCH
JOG (SYSCON IC153 (6))
LPF
Q352
ON/OFF SWITCH
VTR SYNC (IC401 (25))
DDP (IC401 (48))
IC351 (11) PB
2.5Vp-p
PB C
VIDEO (2)
(IC305 (12)) REC Y CONT
(IC305 (3)) REC C RF
(IC305 (5)) DO
DATA TO SLAV
VTR SCK
VIDEO DA CS
SERVO
VTR SYNC
RF SWP (IC153 (55))
INDEX MARKER
VTR SYNC
INDEX VCO
MT 1A
MT 1B
MT 2A
MT 2B
MT FO
ME/MP
RP 5V
IC301

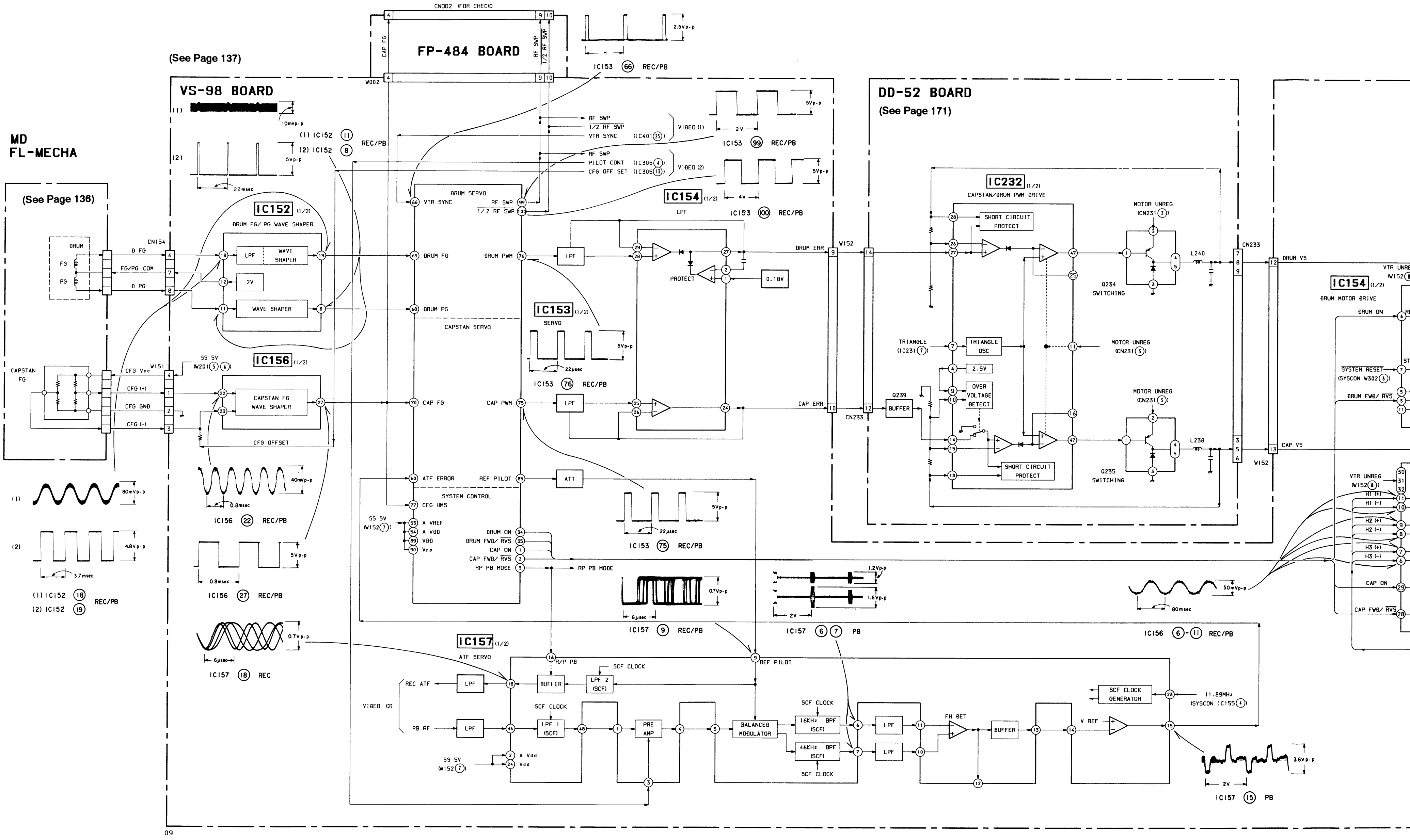

(See Page 135)
JACK ASSY
IC301
S VIDEO I/O
IC303
VIDEO OUT INHIBIT
IC401 (25) REC-PB
IC401 (38) REC
IC301 (13) PB
IC401 (28) (32) REC
NOISE CANSEL
Y COMB FILTER
COMB FILTER
IC403
IC402
IC551
IC304
EVR (D/A CONVERTER)
IC306
EVR (D/A CONVERTER)
IC072
INVERTER
IC351
JOG CHROMA PROCESS
IC301 (7) PB
IC401 (13) REC
IC401 (13) PB
IC351 (2) PB
IC401 (19) REC
IC401 (19) PB
IC551 (1) PB
IC351 (15) PB
IC351 (11) PB
CN301
EVF OUT
EVF (VF-42)
W304
W302
W303
CAMERA (1) (VC-126)
SYSCON (VC-126)
SYSTEM CONTROL
AUDIO (AU-143)
SERVO
INDEX MARKER
BUS DECODER
VIDEO OUT AMP
CHARACTER MIX
CURRENT LIMITER
EMPHASIS Y LEVEL ADJ
PEAKING AMP
REC BUFFER PB EQ.
2H DELAY (CCD)
LPF DELAY 180nS
BUFFER
PHASE SHIFT
FREQUENCY CONVERTER
HALF H KILLER
BF GENERATOR
MODE SWITCH
JOG SWITCH
PAL SEC SWITCH
E. Australian, Tourist model

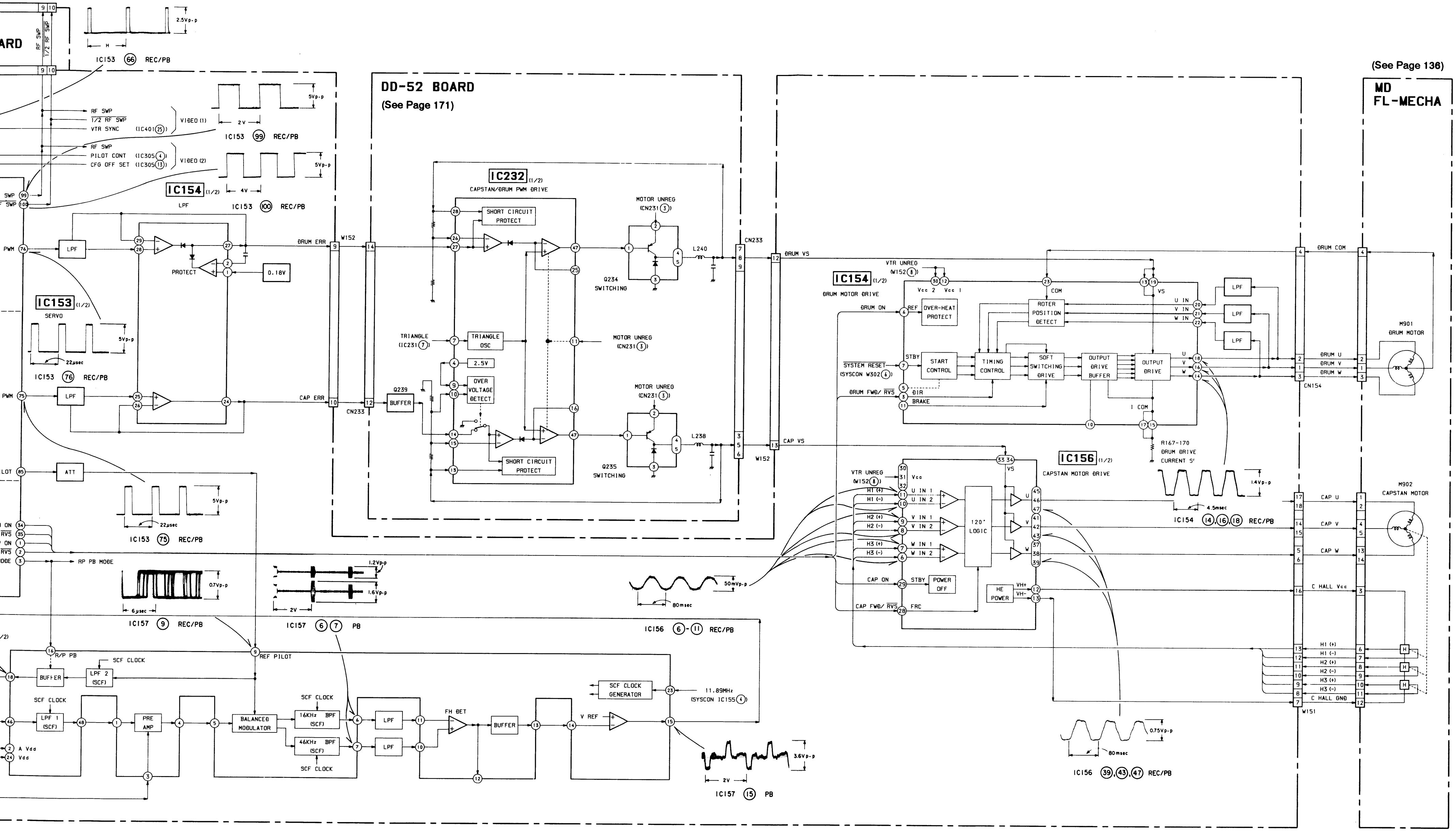
3-8. VIDEO (2) BLOCK DIAGRAM



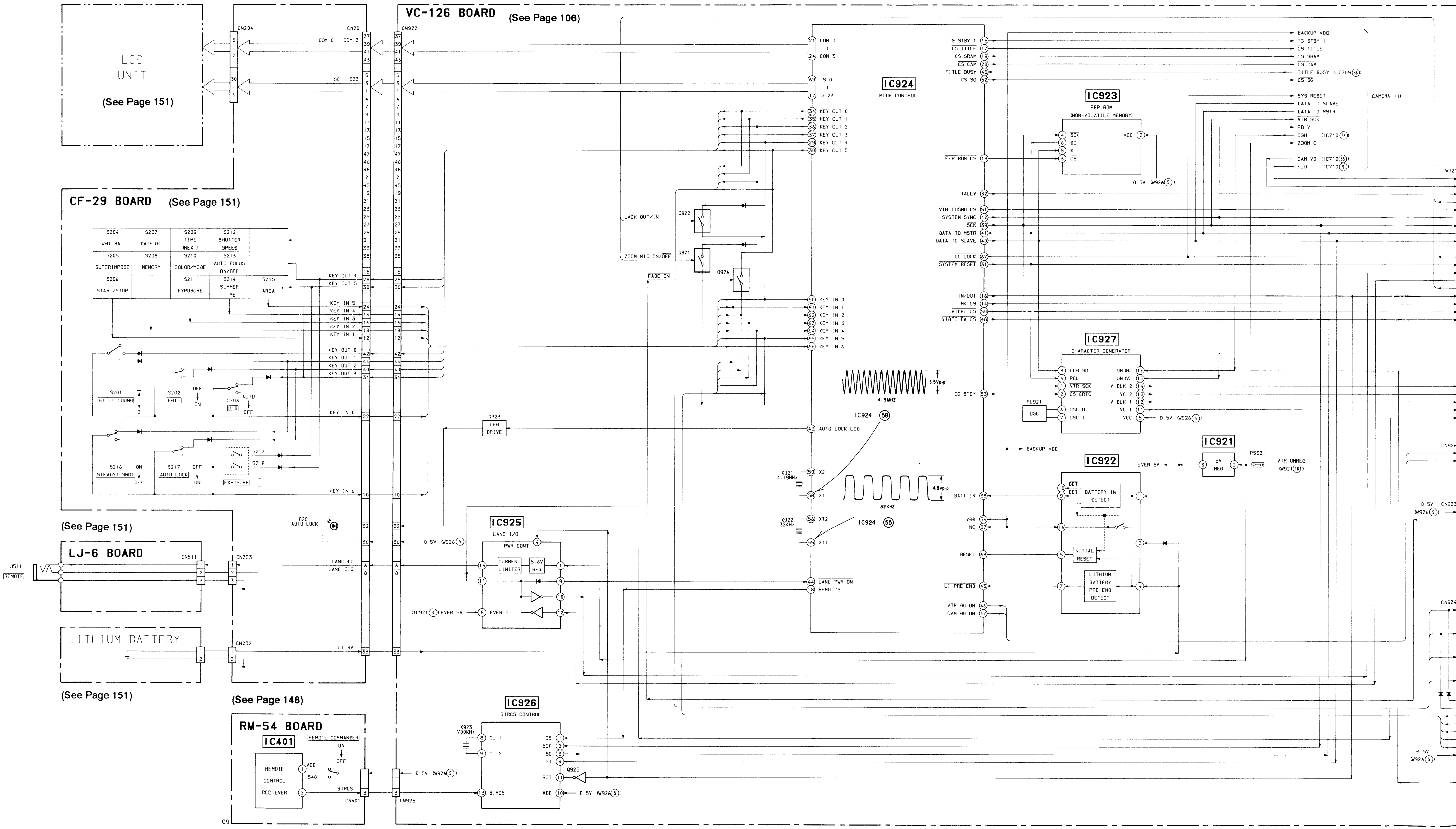
FP-484 BOARD (FLEXIBLE)
VS-98 BOARD (See Page 123, 136)
CN002 (FOR CHECK)
W002
IC305
EVR (D/A CONVERTER)
ZOOM CONT B
ZOOM CONT A
REC L CONT
REC C CONT
PILOT CONT
RF CONT
REC C 1A
REC C 1B
REC C 2A
REC C 2B
REC Y CONT
CFG OFFSET
VDD
VCC
VIDEO 5V (W152 ③)
DI
CLK
LD
DO
Q016, 017 ATT BUFFER
Q018
VIDEO 5V (W152 ③)
PB RF
PB RF CH 2
PB RF CH 1
1/2 RF SWP
RF SWP
REC 1A
REC 1B
REC 2A
REC 2B
ADJ ON
IC001
REC/PB AMP
Q015
Q014
PB MT 1
PB MT 2
PB MT 3
PB MT 4
PB MUTE 1A (IC153 (94))
PB MUTE 1B (IC153 (92))
PB MUTE 2A (IC153 (93))
PB MUTE 2B (IC153 (91))
5Vp-p
2V
IC001 ⑮ REC/PB
SYSCON
VIDEO HEAD 1CH A
1CH A (Y)
1CH A (X)
VIDEO HEAD 1CH B
1CH B (X)
1CH B (Y)
VIDEO HEAD 2CH A
2CH A (Y)
2CH A (Y)
VIDEO HEAD 2CH B
2CH B (Y)
2CH B (Y)
FLYING ERASE HEAD
FE (X)
CN001
Q008, 013
Q007, 012
Q006, 011
Q005, 010
REC AMP
RAMP
RAMP 1A
RAMP 1B
RAMP 2A
RAMP 2B
52dB AMP
MIDDLE TUNE
PB 5V·1A
PB 5V·1B
PB 5V·2A
PB 5V·2B
MT 1A
MT FO
MT Q
MT 1B
MT 2A
MT 2B
PB RF 2A OUT
PB RF 2B OUT
PB RF 1A OUT
PB RF 1B OUT
PB RF CH 1
PB RF CH 2
VIDEO SW 1
VIDEO SW 2
VIDEO SW 3
PCM SW 1
PCM SW 2
PCM SW 3
12dB AMP
4V
IC001 ⑯ REC/PB
VIDEO SW. PCM SW. VP SW COTROL
PB 5V JOG
1/2 RF SWP
RF SWP
PCM REC
RF OUT
Q073 PB RF BUFFER
0.5Vp-p (V)
V
PCM OUT
IC001 ⑱ PB
REC VCC
PB VCC
1A VCC
1B VCC
2A VCC
2B VCC
VIDEO 5V (W152 ③)
0.1Vp-p
H
IC001 (82) REC
0.3Vp-p (V)
0.22μSEC
IC001 (80) REC
Y IN
C IN
AFM IN
ATF IN
PCM IN
VP SW 1
VP SW 2
VP SW 3
VP SW 4
VCA
REC 1A
REC 1B
REC 2A
REC 2B
6dB AMP
MT Q ADJ
MT FO ADJ
ME CONT
ATF CONT
REC L CONT
SP/LP
Q001, 003 ERASE OSC
Q002 ERASE CURRENT SWITCH
FE ON
ME/MP
RP PB (IC153 ③)
RF CONT
REC 1A (IC153 (98))
REC 1B (IC153 (97))
REC 2A (IC153 (96))
REC 2B (IC153 (95))
PB RF
FE ON (IC153 ④)
SP/LP (IC153 (29))
DATA TO SLAV (W302 ⑩)
VTR SCK (W302 ⑫)
VIDEO DA CS (W302 ⑭)
DO
MT 1A (IC306 ⑱)
MT 1B (IC306 ⑲)
MT 2A (IC306 ②)
MT 2B (IC306 ③)
MT FO (IC306 ④)
ME/MP (IC072 ⑥)
REC C RF
RFC Y CONT
VIDEO (1)
PB RF
REC Y RF (IC071 ⑱)
REC C RF (IC503 ③)
RP 5V (Q072)
PILOT CONT
CFG OFF SET
1/2 RF SWP (IC153 (100))
RF SWP (IC153 (99))
PB RF
REC ATF (IC157 ⑱)
SERVO
REC AREA (IC262 ⑮)
PB PCM RF
REC PCM (IC261 ⑫)
INDEX VCO
INDEX MARKER
W303
PB RF
REC AFM
ZOOM CONT A
ZOOM CONT B
AUDIO (AU-143)
09

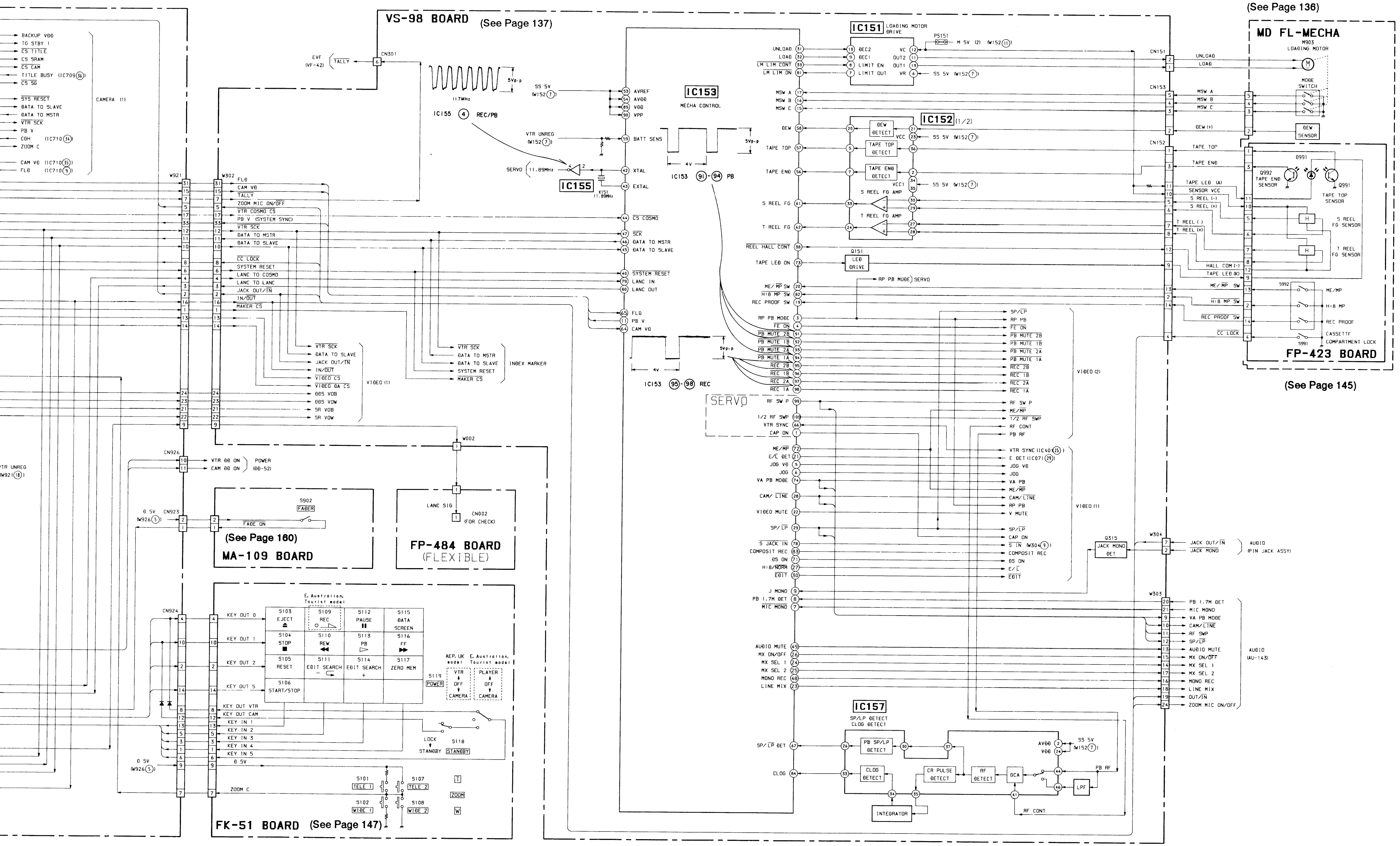
3-9. SERVO BLOCK DIAGRAM


(See Page 137)
CN002 (FOR CHECK)
FP-484 BOARD
CAP FG
RF SWP
1/2 RF SWP
W002
VS-98 BOARD
MD
FL-MECHA
(See Page 136)
DRUM
FG
PG
D FG
FG/PG COM
D PG
CN154
CAPSTAN FG
CFG Vcc
CFG (+)
CFG GND
CFG (-)
W151
SS 5V (W201 ⑤ ⑥)
IC152 (1/2)
DRUM FG/ PG WAVE SHAPER
LPF
WAVE SHAPER
2V
WAVE SHAPER
IC156 (1/2)
CAPSTAN FG WAVE SHAPER
CFG OFFSET
(1) IC152 ⑪
(2) IC152 ⑧
REC/PB
10mVp-p
5Vp-p
22msec
DRUM SERVO
VTR SYNC
RF SWP
1/2 RF SWP
DRUM FG
DRUM PG
DRUM PWM
CAPSTAN SERVO
CAP FG
CAP PWM
ATF ERROR
REF PILOT
SYSTEM CONTROL
CFG HMS
SS 5V (W152 ⑦)
A VREF
A VDD
VDD
Vpp
DRUM ON
DRUM FWD/ RVS
CAP ON
CAP FWD/ RVS
RP PB MODE
RP PB MODE
RF SWP
1/2 RF SWP
VTR SYNC (IC401 ㉕)
VIDEO (1)
RF SWP
PILOT CONT (IC305 ④)
CFG OFF SET (IC305 ⑬)
VIDEO (2)
IC153 ㊻ REC/PB
2.5Vp-p
H
IC153 ㊾ REC/PB
2V
IC153 (100) REC/PB
4V
IC154 (1/2)
LPF
LPF
PROTECT
0.18V
LPF
IC153 (1/2)
SERVO
5Vp-p
22μsec
IC153 ㊼ REC/PB
ATT
5Vp-p
22μsec
IC153 ㊻ REC/PB
0.7Vp-p
6μsec
IC157 ⑨ REC/PB
1.2Vp-p
1.6Vp-p
2V
IC157 ⑥⑦ PB
(1)
80mVp-p
(2)
4.8Vp-p
3.7msec
(1) IC152 ⑱
(2) IC152 ⑲
REC/PB
40mVp-p
0.8msec
IC156 ㉒ REC/PB
5Vp-p
0.8msec
IC156 ㉗ REC/PB
0.7Vp-p
6μsec
IC157 ⑱ REC
IC157 (1/2)
ATF SERVO
R/P PB
SCF CLOCK
REF PILOT
REC ATF
LPF
BUFFER
LPF 2 (SCF)
VIDEO (2)
PB RF
LPF
SCF CLOCK
LPF 1 (SCF)
PRE AMP
BALANCED MODULATOR
SCF CLOCK
16KHz BPF (SCF)
46KHz BPF (SCF)
SCF CLOCK
LPF
LPF
FH DET
BUFFER
V REF
SCF CLOCK GENERATOR
11.89MHz (SYSCON IC155 ④)
SS 5V (W152 ⑦)
A Vdd
Vdd
3.6Vp-p
2V
IC157 ⑮ PB
W152
CN233
DRUM ERR
CAP ERR
DD-52 BOARD
(See Page 171)
IC232 (1/2)
CAPSTAN/DRUM PWM DRIVE
SHORT CIRCUIT PROTECT
TRIANGLE (IC231 ⑦)
TRIANGLE OSC
2.5V
OVER VOLTAGE DETECT
Q239 BUFFER
SHORT CIRCUIT PROTECT
MOTOR UNREG (CN231 ③)
MOTOR UNREG (CN231 ③)
MOTOR UNREG (CN231 ③)
Q234 SWITCHING
Q235 SWITCHING
L240
L238
CN233
W152
DRUM VS
CAP VS
IC154 (1/2)
DRUM MOTOR DRIVE
VTR UNREG (W152 ⑧)
DRUM ON
SYSTEM RESET (SYSCON W302 ⑥)
DRUM FWD/ RVS
VTR UNREG (W152 ⑧)
H1 (+)
H1 (-)
H2 (+)
H2 (-)
H3 (+)
H3 (-)
CAP ON
CAP FWD/ RVS
50mVp-p
80msec
IC156 ⑥-⑪ REC/PB
09


ARD
RF SWP
1/2 RF SWP
IC153 66 REC/PB
IC153 99 REC/PB
IC153 100 REC/PB
IC153 76 REC/PB
IC153 75 REC/PB
IC157 9 REC/PB
IC157 6 7 PB
IC157 15 PB
IC156 6-11 REC/PB
IC154 14,16,18 REC/PB
IC156 39,43,47 REC/PB
VIDEO (1)
VIDEO (2)
VTR SYNC (IC401 25)
PILOT CONT (IC305 4)
CFG OFF SET (IC305 13)
IC154 (1/2) LPF
IC153 (1/2) SERVO
PROTECT
0.18V
DRUM ERR
CAP ERR
W152
CN233
RP PB MODE
ATT
R/P PB
SCF CLOCK
BUFFER
LPF 2 (SCF)
LPF 1 (SCF)
PRE AMP
A Vdd
Vdd
REF PILOT
BALANCED MODULATOR
16KHz BPF (SCF)
46KHz BPF (SCF)
FH DET
V REF
SCF CLOCK GENERATOR
11.89MHz (SYSCON IC155 4)
DD-52 BOARD
(See Page 171)
IC232 (1/2) CAPSTAN/DRUM PWM DRIVE
SHORT CIRCUIT PROTECT
TRIANGLE (IC231 7)
TRIANGLE OSC
2.5V
OVER VOLTAGE DETECT
Q239 BUFFER
MOTOR UNREG (CN231 3)
Q234 SWITCHING
Q235 SWITCHING
L240
L238
DRUM VS
CAP VS
IC154 (1/2) DRUM MOTOR DRIVE
VTR UNREG (W152 8)
DRUM ON
SYSTEM RESET (SYSCON W302 6)
DRUM FWD/RVS
OVER-HEAT PROTECT
START CONTROL
TIMING CONTROL
ROTER POSITION DETECT
SOFT SWITCHING DRIVE
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
DIR
BRAKE
I COM
R167-170 DRUM DRIVE CURRENT S
IC156 (1/2) CAPSTAN MOTOR DRIVE
120° LOGIC
CAP ON
CAP FWD/RVS
POWER OFF
HE POWER
FRC
DRUM COM
DRUM U
DRUM V
DRUM W
CN154
CAP U
CAP V
CAP W
C HALL Vcc
H1 (+)
H1 (-)
H2 (+)
H2 (-)
H3 (+)
H3 (-)
C HALL GND
W151
(See Page 136)
MD FL-MECHA
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
2.5Vp-p
5Vp-p
1.2Vp-p
1.6Vp-p
0.7Vp-p
3.6Vp-p
50mVp-p
1.4Vp-p
0.75Vp-p
22μsec
6μsec
80msec
4.5msec

3-10. SYSTEM CONTROL BLOCK DIAGRAM


LCD UNIT
(See Page 151)
CN204
CN201
COM 0 - COM 3
SQ - S23
CF-29 BOARD
(See Page 151)
S204 WHT BAL
S207 DATE (+)
S209 TIME (NEXT)
S212 SHUTTER SPEED
S205 SUPERIMPOSE
S208 MEMORY
S210 COLOR/MODE
S213 AUTO FOCUS ON/OFF
S206 START/STOP
S211 EXPOSURE
S214 SUMMER TIME
S215 AREA
KEY OUT 4
KEY OUT 5
KEY IN 5
KEY IN 4
KEY IN 3
KEY IN 2
KEY IN 1
KEY OUT 0
KEY OUT 1
KEY OUT 2
KEY OUT 3
S201 HI-FI SOUND
S202 EDIT
S203 HIB
KEY IN 0
S216 STEADY SHOT
S217 AUTO LOCK
S217
S218
EXPOSURE
KEY IN 6
D201 AUTO LOCK
(See Page 151)
LJ-6 BOARD
J511 REMOTE
CN511
CN203
LANC DC
LANC SIG
LITHIUM BATTERY
CN202
LI 3V
(See Page 151)
(See Page 148)
RM-54 BOARD
IC401
REMOTE CONTROL RECIEVER
REMOTE COMMANDER
S401
SIRCS
CN401
VC-126 BOARD
(See Page 106)
CN922
CN925
IC924 MODE CONTROL
COM 0
COM 3
S 0
S 23
KEY OUT 0
KEY OUT 1
KEY OUT 2
KEY OUT 3
KEY OUT 4
KEY OUT 5
JACK OUT/IN
ZOOM MIC ON/OFF
FADE ON
Q922
Q921
Q926
KEY IN 0
KEY IN 1
KEY IN 2
KEY IN 3
KEY IN 4
KEY IN 5
KEY IN 6
3.5Vp-p
4.19MHZ
IC924 (58)
AUTO LOCK LED
Q923 LED DRIVE
X921 4.19MHz
X2
X1
4.8Vp-p
32KHZ
X922 32KHz
XT2
XT1
IC924 (55)
LANC PWR ON
REMO CS
IC925 LANC I/O
PWR CONT
CURRENT LIMITER
5.6V REG
(IC921 (3)) EVER 5V
EVER 5
0 5V (W926 (5))
IC926 SIRCS CONTROL
X923 700KHz
CL 1
CL 2
SIRCS
CS
SCK
SO
SI
RST
VDD
Q925
TG STBY 1
CS TITLE
CS SRAM
CS CAM
TITLE BUSY
CS SG
EEP ROM CS
TALLY
VTR COSMO CS
SYSTEM SYNC
SCK
DATA TO MSTR
DATA TO SLAVE
CC LOCK
SYSTEM RESET
IN/OUT
MK CS
VIDEO CS
VIDEO DA CS
CG STBY
BATT IN
VDD
NC
RESET
LI PRE END
VTR DD ON
CAM DD ON
IC923 EEP ROM (NON-VOLATILE MEMORY)
SCK
DO
DI
CS
VCC
IC927 CHARACTER GENERATOR
LCD SO
PCL
VTR SCK
CS CRTC
OSC 0
OSC 1
UN (H)
UN (V)
V BLK 2
VC 2
V BLK 1
VC 1
VCC
FL921 OSC
BACKUP VDD
IC922
EVER 5V
DET
BATTERY IN DETECT
NITIAL RESET
LITHIUM BATTERY PRE END DETECT
IC921 5V REG
PS921
VTR UNREG (W921 (18))
BACKUP VDD
TG STBY 1
CS TITLE
CS SRAM
CS CAM
TITLE BUSY (IC709 (36))
CS SG
SYS RESET
DATA TO SLAVE
DATA TO MSTR
VTR SCK
PB V
CGH (IC710 (34))
ZOOM C
CAM VD (IC710 (35))
FLD (IC710 (9))
CAMERA (1)
W921
CN926
CN923
CN924
0 5V (W926 (5))
09


VS-98 BOARD (See Page 137)
MD FL-MECHA (See Page 136)
FP-423 BOARD (See Page 145)
MA-109 BOARD (See Page 160)
FP-484 BOARD (FLEXIBLE)
FK-51 BOARD (See Page 147)
IC151 LOADING MOTOR DRIVE
IC152 (1/2)
IC153 MECHA CONTROL
IC155
IC157 SP/LP DETECT CLOG DETECT
SERVO
M903 LOADING MOTOR
MODE SWITCH
DEW SENSOR
TAPE END SENSOR
TAPE TOP SENSOR
S REEL FG SENSOR
T REEL FG SENSOR
BACKUP VDD
TG STBY 1
CS TITLE
CS SRAM
CS CAM
TITLE BUSY (IC709 (56))
CS SG
CAMERA (1)
SYS RESET
DATA TO SLAVE
DATA TO MSTR
VTR SCK
PB V
CGH (IC710 (34))
ZOOM C
CAM VD (IC710 (35))
FLD (IC710 (9))
W921
W302
FLD
CAM VD
TALLY
ZOOM MIC ON/OFF
VTR COSMO CS
PB V (SYSTEM SYNC)
CC LOCK
SYSTEM RESET
LANC TO COSMO
LANC TO LANC
JACK OUT/IN
IN/OUT
MAKER CS
VIDEO CS
VIDEO DA CS
DDS VDB
DDS VDW
SR VDB
SR VDW
VIDEO (1)
INDEX MARKER
EVF (VF-42)
CN301
11.7MHz
5Vp-p
IC155 (4) REC/PB
SS 5V (W152 (7))
VTR UNREG (W152 (7))
SERVO 11.89MHz
X151 11.89MHz
AVREF
AVDD
VDD
VPP
BATT SENS
XTAL
EXTAL
CS COSMO
SCK
DATA TO MSTR
DATA TO SLAVE
LANC IN
LANC OUT
IC153 (91)-(94) PB
IC153 (95)-(98) REC
4V
UNLOAD
LOAD
LM LIM CONT
LM LIM ON
DEC2
DEC1
LIMIT EN
LIMIT OUT
VC
OUT2
OUT1
VR
PS151
M 5V (2) (W152 (11))
MSW A
MSW B
MSW C
DEW
TAPE TOP
TAPE END
S REEL FG
T REEL FG
REEL HALL CONT
TAPE LED ON
Q151 LED DRIVE
DEW DETECT
TAPE TOP DETECT
TAPE END DETECT
S REEL FG AMP
T REEL FG AMP
VCC
VCC1
ME/MP SW
Hi8 MP SW
REC PROOF SW
RP PB MODE
RP PB MODE) SERVO
FE ON
PB MUTE 2B
PB MUTE 1B
PB MUTE 2A
PB MUTE 1A
REC 2B
REC 1B
REC 2A
REC 1A
RF SW P
1/2 RF SWP
VTR SYNC
CAP ON
SP/LP
RP PB
RF CONT
PB RF
VIDEO (2)
ME/MP
E/C DET
JOG VD
JOG
VA PB MODE
CAM/LINE
VIDEO MUTE
S JACK IN
COMPOSIT REC
DS ON
Hi8/NORM
EDIT
VTR SYNC (IC401 (35))
E DET (IC071 (29))
V MUTE
S IN (W304 (9))
VIDEO (1)
J MONO
PB 1.7M DET
MIC MONO
AUDIO MUTE
MX ON/OFF
MX SEL 1
MX SEL 2
MONO REC
LINE MIX
Q315 JACK MONO DET
W304
JACK OUT/IN
JACK MONO
AUDIO (PIN JACK ASSY)
W303
RF SWP
OUT/IN
ZOOM MIC ON/OFF
AUDIO (AU-143)
SP/LP DET
CLOG
PB SP/LP DETECT
CLOG DETECT
CR PULSE DETECT
RF DETECT
GCA
LPF
INTEGRATOR
AVDD
RF CONT
CN151
CN153
CN152
DEW (+)
TAPE LED (A)
SENSOR VCC
S REEL (-)
S REEL (+)
T REEL (-)
T REEL (+)
HALL COM (-)
TAPE LED (K)
Q992
Q991
D991
S992
S991
ME/MP
Hi8 MP
REC PROOF
CASSETTE COMPARTMENT LOCK
W002
CN926
VTR DD ON
CAM DD ON
POWER (DD-52)
VTR UNREG (W921 (18))
D 5V (W926 (5))
CN923
S902 FADER
FADE ON
LANC SIG
CN002 (FOR CHECK)
CN924
KEY OUT 0
KEY OUT 1
KEY OUT 2
KEY OUT 5
KEY OUT VTR
KEY OUT CAM
KEY IN 1
KEY IN 2
KEY IN 3
KEY IN 4
KEY IN 5
D 5V
ZOOM C
E. Australian, Tourist model
S103 EJECT
S109 REC
S112 PAUSE
S115 DATA SCREEN
S104 STOP
S110 REW
S113 PB
S116 FF
S105 RESET
S111 EDIT SEARCH
S114 EDIT SEARCH
S117 ZERO MEM
S106 START/STOP
AEP, UK model
E, Australian, Tourist model
S119 POWER
VTR OFF CAMERA
PLAYER OFF CAMERA
LOCK
S118
STANDBY
S101 TELE 1
S102 WIDE 1
S107 TELE 2
S108 WIDE 2
T
ZOOM
W

3-11. SYSTEM (MECHANISM) CONTROL MICROPROCESSOR PIN FUNCTION (IC153 ON VS-98 BOARD: CXP80624-263Q/266Q)

<table>
<tr><th>Pin No.</th><th>Signal</th><th>I/O</th><th>Function</th></tr>
<tr><td>1</td><td>CAP ON</td><td>O</td><td>Capstan driver ON/OFF control signal. "H" when capstan ON.</td></tr>
<tr><td>2</td><td>CAP FWD/$\overline{\text{RVS}}$</td><td>O</td><td>Capstan rotating direction control signal. "H": FWD, "L":RVS.</td></tr>
<tr><td>3</td><td>RP PB MODE</td><td>O</td><td>REC/PB select signal of REC/PB amplifier (IC001 on VC-98 board) and ATF servo IC (IC157 on VC-98 board). "H": PB.</td></tr>
<tr><td>4</td><td>$\overline{\text{FE ON}}$</td><td>O</td><td>Flying erase oscillation ON/OFF control signal. "L": oscillation.</td></tr>
<tr><td>5</td><td>JOG VD</td><td>O</td><td>False VD signal to be inserted into playback video signal during variable speed playback.</td></tr>
<tr><td>6</td><td>JOG</td><td>O</td><td>Variable speed/normal speed playback select signal of video circuit. "H" when variable speed playback.</td></tr>
<tr><td>7</td><td>$\overline{\text{MIC MONO}}$</td><td>I</td><td>External microphone monaural/stereo discrimination input. "L": When monaural microphone is used.</td></tr>
<tr><td>8</td><td>PB 1.7M DET</td><td>I</td><td>AFM stereo tape/monaural tape discrimination input. "H": When stereo or bilingual tape is played back.</td></tr>
<tr><td>9</td><td>J MONO</td><td>I</td><td>Audio input/output terminal monaural/stereo discrimination input. "L": When jack is inserted in right channel terminal.</td></tr>
<tr><td>10</td><td>INT VD</td><td>O</td><td>Internal VD signal.</td></tr>
<tr><td>11</td><td>PBV</td><td>O</td><td>V sync as reference to character generator, communication and LANC period.
Lock to CAM VD (Pin (64)) when CAM. Lock to VTR sync (Pin (66)) when VTR.</td></tr>
<tr><td>12</td><td>NC</td><td>O</td><td rowspan="3">Not used (Open).</td></tr>
<tr><td>13</td><td>NC</td><td>O</td></tr>
<tr><td>14</td><td>NC</td><td>O</td></tr>
<tr><td>15</td><td>MSW C</td><td>I</td><td rowspan="3">MODE switch input.
<table>
<tr><th></th><th>EJECT</th><th>USE</th><th>LS</th><th>GL</th><th>REC/PB</th><th>READY</th></tr>
<tr><td>MSW A</td><td>L</td><td>H</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>MSW B</td><td>L</td><td>H</td><td>H</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>MSW C</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td><td>L</td></tr>
</table></td></tr>
<tr><td>16</td><td>MSW B</td><td>I</td></tr>
<tr><td>17</td><td>MSW A</td><td>I</td></tr>
<tr><td>18</td><td>NC</td><td></td><td>Not used (open).</td></tr>
<tr><td>19</td><td>$\overline{\text{REC PROOF SW}}$</td><td>I</td><td>Erasure protection switch input. "L" when REC prohibit.</td></tr>
<tr><td>20</td><td>ME/$\overline{\text{MP}}$ SW</td><td>I</td><td>ME/$\overline{\text{MP}}$ switch input. "L": MP, "H": ME.</td></tr>
<tr><td>21</td><td>E/$\overline{\text{L}}$ DET</td><td>I</td><td>Normal/Hi8 discrimination input. "H": When Hi8 tape is played back.</td></tr>
<tr><td>22</td><td>VIDEO MUTE</td><td>O</td><td>Video output mute signal. "H": mute.</td></tr>
<tr><td>23</td><td>LINE MIX</td><td>I</td><td>"H" only when Hi-Fi sound switch is at the "Stereo" (Green) position and plug is not inserted in the right audio output terminal as well during playback.</td></tr>
<tr><td>24</td><td>MX SEL 1</td><td>O</td><td rowspan="2">During REC: Monaural/stereo switching signal.
<table>
<tr><th></th><th>Monaural</th><th>Stereo</th></tr>
<tr><td>MX SEL 1</td><td>L</td><td>L</td></tr>
<tr><td>MX SEL 2</td><td>H</td><td>L</td></tr>
</table>
During Playback: Monaural/stereo switching signal.
<table>
<tr><th></th><th>Stereo</th><th>1</th><th>2</th><th>Monaural</th></tr>
<tr><td>MX SEL 1</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>MX SEL 2</td><td>L</td><td>L</td><td>H</td><td>L</td></tr>
</table></td></tr>
<tr><td>25</td><td>MX SEL 2</td><td>O</td></tr>
<tr><td>26</td><td>MX ON/OFF</td><td>O</td><td>Matrix ON/OFF signal. "H": Matrix ON (Stereo REC/PB).</td></tr>
<tr><td>27</td><td>Hi8/$\overline{\text{NORM}}$(E/$\overline{\text{L}}$)</td><td>O</td><td>Video circuit normal/Hi8 switching signal. "H": Hi8 mode.</td></tr>
<tr><td>28</td><td>CAM/$\overline{\text{LINE}}$</td><td>O</td><td>Camera input/line input select signal. "H" when camera input.</td></tr>
<tr><td>29</td><td>SP/$\overline{\text{LP}}$</td><td>O</td><td>SP/LP switching signal. "L": LP.</td></tr>
<tr><td>30</td><td>$\overline{\text{EDIT}}$</td><td>O</td><td>Video circuit normal/EDIT switching signal. "L": When "EDIT" switch is ON.</td></tr>
<tr><td>31</td><td>UNLOAD</td><td>O</td><td>Loading motor control signal. "H" or "H" pulse when unloading.</td></tr>
<tr><td>32</td><td>LOAD</td><td>O</td><td>Loading motor control signal. "H" or "H" pulse when loading.</td></tr>
<tr><td>33</td><td>$\overline{\text{LM LIM CONT}}$</td><td>O</td><td>Loading motor limiter control signal. Temporary "H" when loading.</td></tr>
<tr><td>34</td><td>DRUM ON</td><td>O</td><td>Drum motor ON/OFF signal. "H" (approx. 1.3V) when drum ON.</td></tr>
<tr><td>35</td><td>DRUM FWD/$\overline{\text{RVS}}$</td><td>O</td><td>Drum rotating direction control signal. Normally "H".</td></tr>
<tr><td>36</td><td>NC</td><td>O</td><td rowspan="2">Not used (open).</td></tr>
<tr><td>37</td><td>NC</td><td>O</td></tr>
<tr><td>38</td><td>$\overline{\text{REEL HALL CONT}}$</td><td>O</td><td>Reel FG sensor (HALL element) power supply control signal.</td></tr>
<tr><td>39</td><td>MP</td><td>I</td><td>Connected to GND.</td></tr>
</table>

Pin No.	Signal	I/O	Function
40	$\overline{\text{SYSTEM RESET}}$	I	Reset signal from mode control microprocessor (IC924 on VC-126 board). "L" when reset.
41	VSS		GND
42	XTAL	O	11.72 MHz clock oscillation circuit.
43	EXTAL	I	
44	$\overline{\text{CS COSMO}}$	I	Chip select signal from mode control microprocessor (IC924 on VC-126 board).
45	DATA TO SLAVE	I	Serial data input from mode control microprocessor.
46	DATA TO MSTER	O	Serial data output to mode control microprocessor.
47	$\overline{\text{SCK}}$	O	Serial clock output to mode control microprocessor.
48	MONO REC	O	Monaural/stereo recording switching signal. "H": when monaural recording.
49	AUDIO MUTE	O	Audio output mute signal. "H": mute.
50	TLV CHC		+5V power supply.
51	NC		Not used (open).
52	AVSS		AD converter system GND.
53	AVREF		AD converter system reference voltage. Connected to +5V.
54	AVDD		AD converter system power supply (5V).
55	NC		Not used.
56	TAPE END	I	Tape end detection signal. Normally "L". "H" pulse: tape end.
57	TAPE TOP	I	Tape top detection signal. Normally "L", "H" pulse: tape top.
58	$\overline{\text{DEW}}$	I	Dew condensation detection signal. "L" when dew condensation.
59	BATT SENSE	I	Battery voltage input for battery end detection. 1/2 divided by RB163.
60	ATF ERROR	I	ATF error, ATF lock error input.
61	S REEL FG	I	S reel FG signal input.
62	T REEL FG	I	T reel FG signal input.
63	NC	I	Not used.
64	CAM VD	I	VD signal from camera circuit sync generator (IC710 on VC-126 board). V period pulse.
65	FLD	I	FIELD signal from camera circuit sync generator. 2V period pulse.
66	VTR SYNC	I	Composite sync signal separated from REC/PB Y signal.
67	SP/$\overline{\text{LP}}$ DET	I	Discrimates PB tape REC mode when CUE/REVIEW/FF and REW. "L": LP.
68	DRUM PG	I	Drum PG signal input. For drum phase servo. 26.7 msec period "H" pulse.
69	DRUM FG	I	Drum FG signal input. For drum speed servo. 4.4 msec period pulse.
70	CAP FG	I	Capstan FG signal input. For capstan speed servo. Approx. 1145.5 Hz when REC/PB. (SP mode)
71	DS ON	O	Data screen ON/OFF signal. "H": ON.
72	ME/$\overline{\text{MP}}$	O	REC current switching signal. "H": ME tape.
73	TAPE LED ON	O	Tape LED ON/OFF signal. 200 msec period "H" pulse when REC/PB.
74	VA PB MODE	O	Video/audio circuit REC/PB switching signal. "H": PB.
75	CAP PWM	O	Capstan error signal output. 21.85 μsec PWM signal.
76	DRUM PWM	O	Drum error signal output. 21.85 μsec PWM signal.
77	CFG HMS	I	Capstan FG signal input. For tape counter.
78	$\overline{\text{S JACK IN}}$	I	"L" when plug is inserted in S VIDEO terminal.
79	LANC IN	I	LANC serial data input.
80	LANC OUT	O	LANC serial data output.
81	$\overline{\text{LM LIM ON}}$	I	Loading motor limiter ON detection signal. Normally "H", "L" when limiter ON.
82	$\overline{\text{Hi8 MP SW}}$	I	Hi8 MP switch input. "L": Hi8 MP.
83	$\overline{\text{COMPOSIT REC}}$	O	Video input/S video input switching signal. "H": video input.
84	CLOG DET	I	Head clog detection signal. "L" when no trouble.
85	REF PILOT	O	ATF servo reference pilot signal. Synchronized with drum rotation to output by selecting four frequencies. f1=101.024 kHz, f2=117.188 kHz, f3=162.760 kHz and f4=146.484 kHz.
86	NC	I	Not used, connected to GND.
87	NC	I	

Pin No.	Signal	I/O	Function
88	VSS		GND
89	VDD		+5 power supply.
90	VPP		
91	PB MUTE 2B	O	Head PB mute signal. Control signal for protecting crosstalk from the other three heads during PB. 4V period pulse when PB/REC ("L": only head during PB/REC). "L" when other cases.
92	PB MUTE 1B	O	
93	PB MUTE 2A	O	
94	PB MUTE 1A	O	
95	REC 2B	O	REC head (1A, 1B, 2A and 2B) select control signal. 4V period pulse when REC ("L": only head during REC). "H" when other cases.
96	REC 1B	O	
97	REC 2A	O	
98	REC 1A	O	
99	RF SWP	O	RF switching pulse signal. 25 Hz, 50% duty pulse.
100	1/2 RF SWP	O	1/2 RF switching pulse signal. 12.5 Hz, 50% duty pulse.

3-12. MODE CONTROL (MASTER) MICROPROCESSOR PIN FUNCTION (IC924 ON VC-126 BOARD: μPD75316)

Pin No.	Signal	I/O	Function
1	S12	O	LCD SEG Pin drive signal. Four value pulses of 0V, 1.6V, 3.2V and 4.8V.
2	S13	O	
3	S14	O	
4	S15	O	
5	S16	O	
6	S17	O	
7	S18	O	
8	S19	O	
9	S20	O	
10	S21	O	
11	S22	O	
12	S23	O	
13	$\overline{\text{EEPROM CS}}$	O	Chip select signal to EEPROM (IC923 on VC-126 board).
14	$\overline{\text{MK CS}}$	O	Chip select signal to data code controller (IC262 on VS-98 board).
15	TG STBY	O	Controls 4fsc timing generator (IC801 on VC-126 board) when VTR mode. Normally "L".
16	IN/$\overline{\text{OUT}}$	O	Video, audio input/output switching signal.
17	TITLE CS	O	Chip select signal to titler (IC707 on VC-126 board).
18	REMO CS	O	Chip select signal to SIRCS (infrared remote control) controller (IC926 on VC-126 board).
19	SRAM CS	O	Chip select signal to SRAM (title memory: IC707 on VC-126 board).
20	$\overline{\text{CAM CS}}$	O	Chip select signal to camera microprocessor (IC702 on VC-126 board).
21	COM0	O	LCD COM Pin drive signal. Four value pulses of 0V, 1.6V, 3.2V and 4.8V.
22	COM1	O	
23	COM2	O	
24	COM3	O	
25	BIAS	O	4.8V LCD bias terminal.
26	VLC0	I	4.8V LCD drive bias pin.
27	VLC1	I	3.2V
28	VLC2	I	1.6V
29	KEY OUT 4	O	Key matrix output. V period "L" pulse output. "Hiz" when other cases.
30	KEY OUT 5	O	
31	$\overline{\text{SYSTEM RESET}}$	O	Reset signal output of whole system. Normally "H". "L" when reset.
32	$\overline{\text{TALLY}}$	O	ON/OFF signal of TALLY LED. "L" when LED is lit.
33	GND		GND
34	KEY OUT 0	O	Key matrix output. V period "L" pulse output. "Hiz" when other cases.
35	KEY OUT 1	O	
36	KEY OUT 2	O	
37	KEY OUT 3	O	
38	$\overline{\text{BATT IN}}$	I	Main battery detection input. "L" when main battery is mounted.
39	$\overline{\text{SCK}}$	I	Serial data transfer clock.
40	DATA TO SLV	O	Serial data output.
41	DATA TO MSTR	I	Serial data input.
42	SYSTEM SYNC	I	V SYNC from mechanism control microprocessor (IC153 on VS-98 board). Timing reference signal for communication, LANC, etc.
43	$\overline{\text{LI PRE END}}$	I	Lithium battery preend detection input. "L" when no lithium battery or wasted.
44	$\overline{\text{LANC PWR ON}}$	I	Power on signal input from wired remote control. "L": When remote control power switch is pressed.
45	TITLE BUSY	I	Title busy signal. Normally "L".
46	VTR DD ON	O	VTR DC-DC converter control signal. "H": When power supply switch is set to "VTR" or "Camera".
47	CAMERA DD ON	O	CAMERA DC-DC converter control signal. "H": When power supply switch is set to "CAMERA".

Pin No.	Signal	I/O	Function
48	$\overline{\text{VIDEO DA CS}}$	O	Chip select signal to video, audio circuit EVR (ICs 304 to 306 on VS-98 board).
49	AUTO LOCK LED	O	Auto-lock LED ON/OFF signal. "H" when LED is lit.
50	$\overline{\text{VIDEO CS}}$	O	Chip select signal to video Y signal process IC (IC401 on VS-98 board).
51	$\overline{\text{VTR COSMO CS}}$	O	Chip select signal to mechanism control microprocessor (IC153 on VS-98 board).
52	$\overline{\text{SG CS}}$	O	Chip select signal to SYNC generator (IC710 on VC-126 board).
53	CG STBY	O	Chip select signal to character generator (IC927 on VC-126 board).
54	VDD		+5V power supply.
55	XT1	I	32 kHz crystal oscillation circuit (for clock).
56	XT2		
57	NC		Connected to +5V.
58	X1	I	4.19 MHz crystal oscillation circuit (for system clock).
59	X2	I	
60	KEY IN 0	I	Key matrix input. V period "L" pulse input when corresponding key is pressed. "H" when other cases.
61	KEY IN 1	I	
62	KEY IN 2	I	
63	KEY IN 3	I	
64	KEY IN 4	I	
65	KEY IN 5	I	
66	KEY IN 6	I	
67	$\overline{\text{CC LOCK}}$	I	Cassette compartment lock switch input. "L": lock.
68	$\overline{\text{RESET}}$	I	Mode control microprocessor reset signal input. Normally "H", "L" when reset.
69	S0		LCD SEG Pin drive signal. Four value pulses of 0V, 1.6V, 3.2V and 4.8V.
70	S1		
71	S2	O	
72	S3	O	
73	S4	O	
74	S5	O	
75	S6	O	
76	S7	O	
77	S8	O	
78	S9	O	
79	S10	O	
80	S11	O	

3-13. INTERFACE

3-13-1. System Control – Video/Audio Block Interface (VS-98 BOARD)

NAME	I/O	No.	VTR MODE															CAMERA MODE					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB· PAUSE	FRAME	SLOW	SHUTTLE EDIT *14		REC *15	REC *15 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
SP/$\overline{\text{LP}}$	O	IC153㉙	*1	H	H	*2	*2	*2	*2	*2	*1	*1	*1	*2	*2	*16	H/L	H/L	*16	*2	*2	H	H
VA PB MODE	O	IC153(74)	L	L	L	H	H	H	H	H	H	H	H	H	H	L	L	L	L	H	H	H	H
AUDIO MUTE	O	IC153㊾	L	L	L	H	H	L	H	H	H	H	H	H	H	L	L	L	L	H	H	H	H
VIDEO MUTE *13	O	IC153㉒	*3	*3	*3	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*3	*3	L	L	*4	*4	*4	*4
CAM/$\overline{\text{LINE}}$	O	IC153㉘	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	L	L	L	L
JOG VD	O	IC153⑤	L	L	L	*5	*5	L	*5	*5	*5	*5	*5	L	*5	L	L	L	L	L	*5	L	*5
RP PB MODE	O	IC153③	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
$\overline{\text{FE ON}}$	O	IC153④	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
$\overline{\text{1/2 RF SWP}}$	O	IC153(100)	H	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RF SWP	O	IC153(99)	L	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
$\overline{\text{PB MUTE 2B}}$	O	IC153(91)	L	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8
$\overline{\text{PB MUTE 1B}}$	O	IC153(92)																					
$\overline{\text{PB MUTE 2A}}$	O	IC153(93)																					
$\overline{\text{PB MUTE 1A}}$	O	IC153(94)																					
$\overline{\text{JOG}}$	O	IC153⑥	L	L	L	H	H	L	H	H	H	H	H	L	H	L	L	L	L	L	H	L	H

NAME	I/O	No.	VTR MODE															CAMERA MODE					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SERACH		PB·PAUSE	FRAME	SLOW	SHUTTLE EDIT *14		REC *15	REC *15 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
$\overline{\text{REC2B}}$	O	IC153 (95)	H	H	H	H	H	H	H	H	H	H	H	H	H	*9	H	H	*9	H	H	H	H
$\overline{\text{REC1B}}$	O	IC153 (96)																					
$\overline{\text{REC2A}}$	O	IC153 (97)																					
$\overline{\text{REC1A}}$	O	IC153 (98)																					
SP/$\overline{\text{LP}}$ DET	I	IC153 (67)	L	*10	*10	*10	*10	L	*10	*10	*10			L	*10	H	H	H	H	L	*10	L	*10
CLOG	I	IC153 (84)	H	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	H	*11	*11	H	*11	*11	*11	*11
VTR SYNC	I	IC153 (66)	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12

*1. Outputs discrimination result of the mode just before. "H": SP mode, "L": LP mode.
*2. Outputs discrimination result of the REC mode of the playback tape. "H" : SP mode, "L": LP mode.
*3. "L" when external input (video) present. "H" when other cases.
*4. "H" when tape no signal. "L" when other cases.
*5. False VD signal
*6. 12.5 Hz duty 50% pulse (synchronized with drum rotation)
*7. 25 Hz duty 50% pulse (synchronized with drum rotation)
*8. See time chart 1.
*9. See time chart 2.
*10. "H": SP recording area on tape. "L": LP recording area.
*11. "H": no recording area or drop out area on tape. Head clog detection input.
*12. Composite sync signal input separated from line input video signal, camera video signal or playback video signal. (polarity +)
*13. "H" during load/unload of the CAMERA mode.
*14. Edit search pressed when playback pause mode.
*15. E, Australian model only.
*16. By REC MODE switch. "H": SP mode, "L": LP mode.

3-13-2. System Control – Servo Block Interface (VS-98 Board)

NAME	I/O	No.	VTR MODE															CAMERA MODE					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB·PAUSE	FRAME	SLOW	SHUTTLE EDIT *13		REC *14	REC *14 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
T.REEL FG	I	IC153 (62)	–	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
S.REEL FG	I	IC153 (61)	–	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
ATF ERROR	I	IC153 (60)	–	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
DRUM PG	I	IC153 (68)	–	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
DRUM FG	I	IC153 (69)	–	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP FG/ CFG HMS	I	IC153 (70), (71)	–	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
CAP ON	O	IC153 ①	L	H	H	H	H	H	H	H	L	*8	*8	H	H	H	L	L	H	H	H	H	H
REF PILOT	O	IC153 (85)	*7	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RP PB MODE	O	IC153 ③	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
DRUM FWD/$\overline{\text{RVS}}$ *10	O	IC153 ㉟	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
CAP FWD/$\overline{\text{RVS}}$	O	IC153 ②	L	H	L	H	L	H	H	L	L	*8	*8	H	L	H	L	L	H	H	L	H	L
DRUM PWM	O	IC153 (76)	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9
CAP PWM	O	IC153 (75)	L	*9	*9	*9	*9	*9	*9	*9	L	*9	*9	*9	*9	*9	L	L	*9	*9	*9	*9	*9
$\overline{\text{LM LIM CONT}}$ *11	O	IC153 ㉝	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
DRUM ON *12	O	IC153 ㉞	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H

*1. Pulse input amplitude modulated by reel rotation. (200 msec period when REC/PB)

*2. ATF error voltage input

*3. One PG pulse input per one drum rotation, approx. 37.5 Hz.

*4. Six PG pulses input per one drum rotation, approx. 225 Hz.

*5. 360 FG pulses input per one capstan rotation. Approx. 1145.5 Hz when REC/PB (SP).

*6. Four frequencies output synchronized with drum rotation. f1=101.024 kHz, f2=117.188 kHz, f3=162.760 kHz and f4=146.484 kHz

*7. f2 (117.188 kHz) output

*8. "H" pulse when tape run.

*9. 21.85 μsec period PWM signal

*10. Normally "H". Temporary "L" only when load/unload (drum reverse rotation).

*11. Temporary "H" only when cassette loading (finger catch protection).

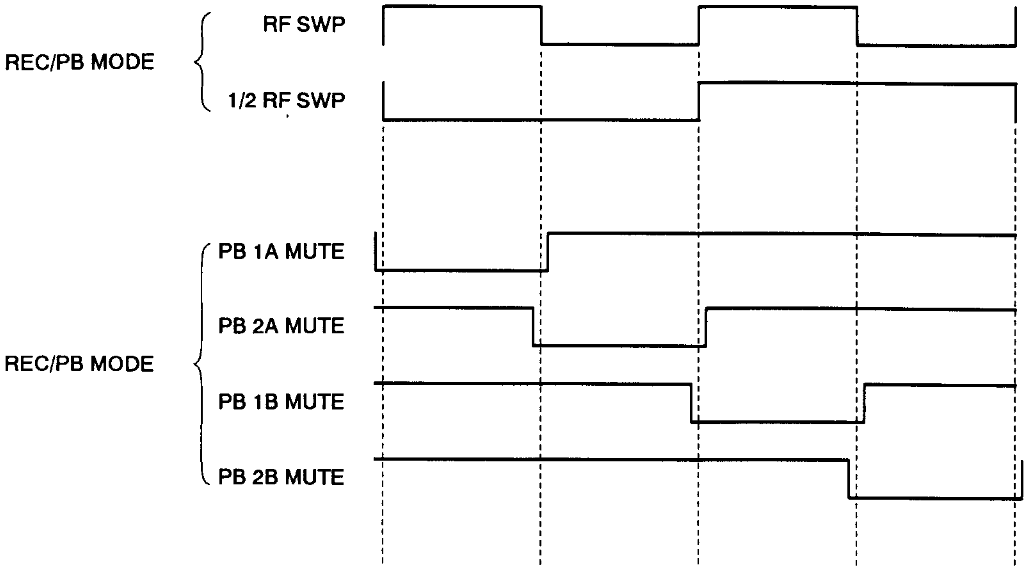
*12. "H": approx. 1.3 Vdc

*13. Edit search pressed when playback pause mode.

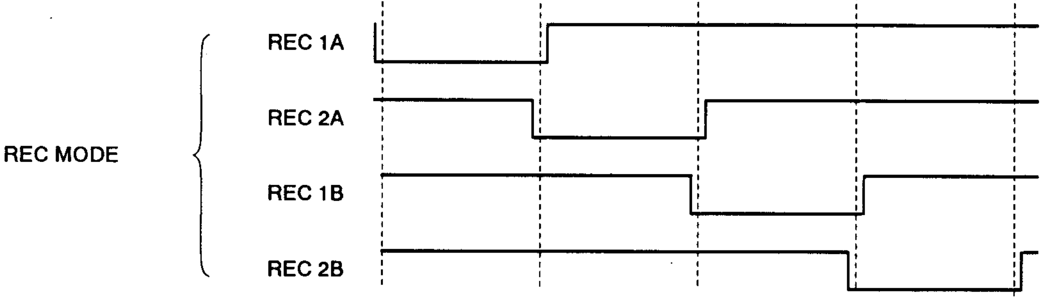
*14. E, Australian model only.

EW
VS
*1
*1
*2
*3
*4
*5
H
*6
H
H
L
*9
*9
L
H

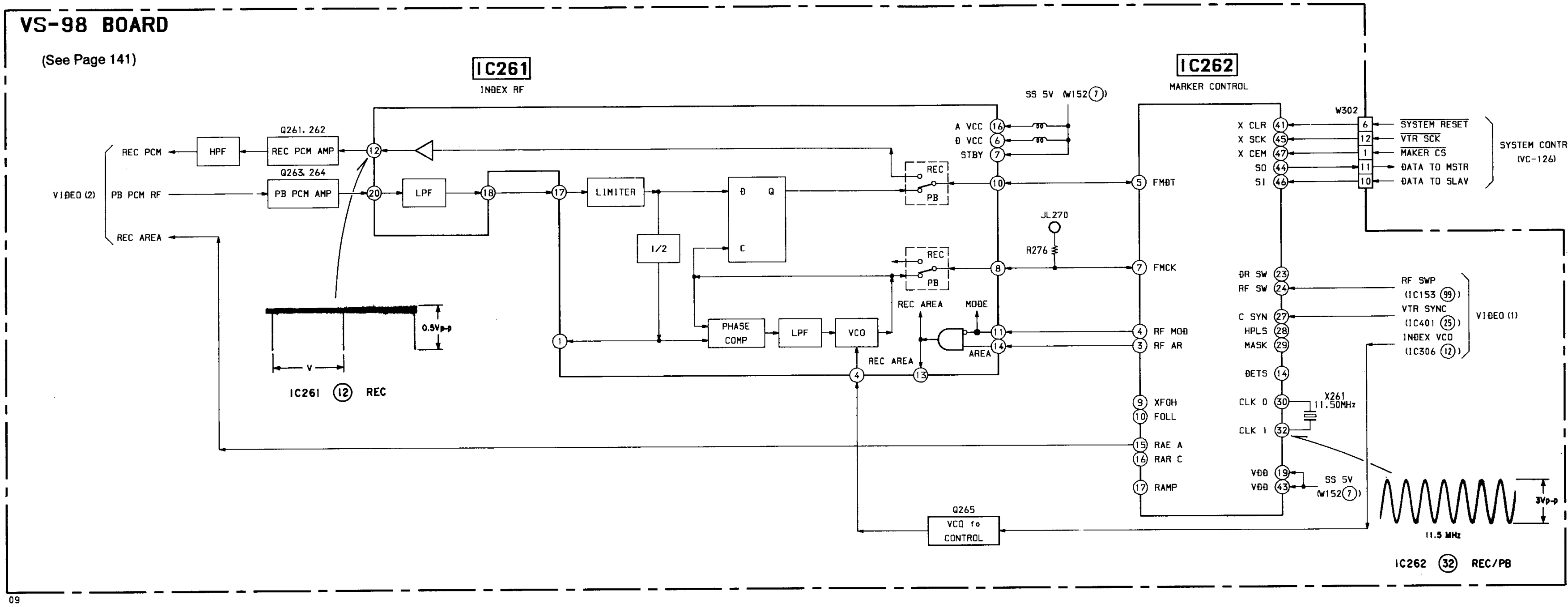
TIME CHART 1


REC/PB MODE
RF SWP
1/2 RF SWP
REC/PB MODE
PB 1A MUTE
PB 2A MUTE
PB 1B MUTE
PB 2B MUTE

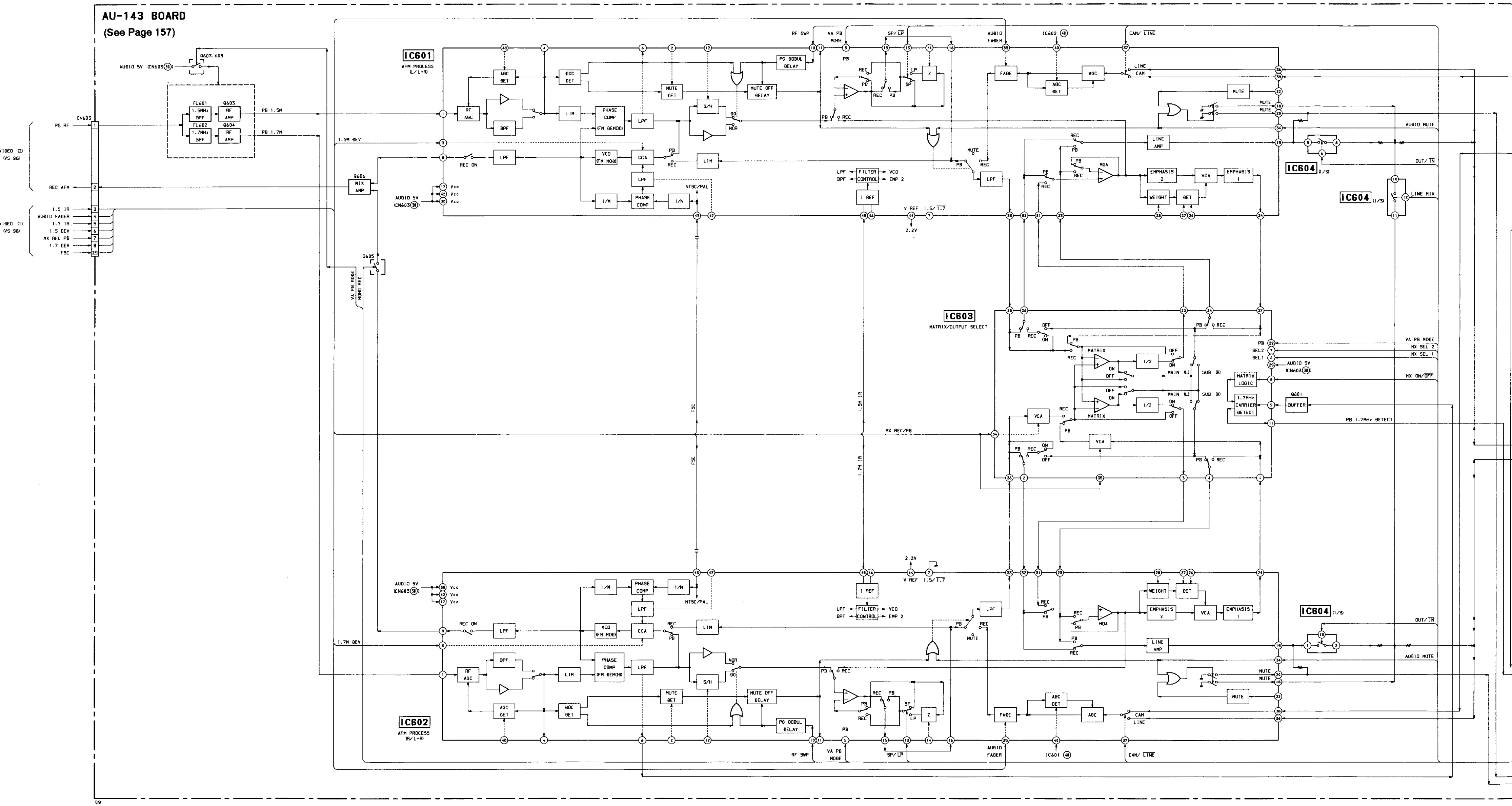
TIME CHART 2

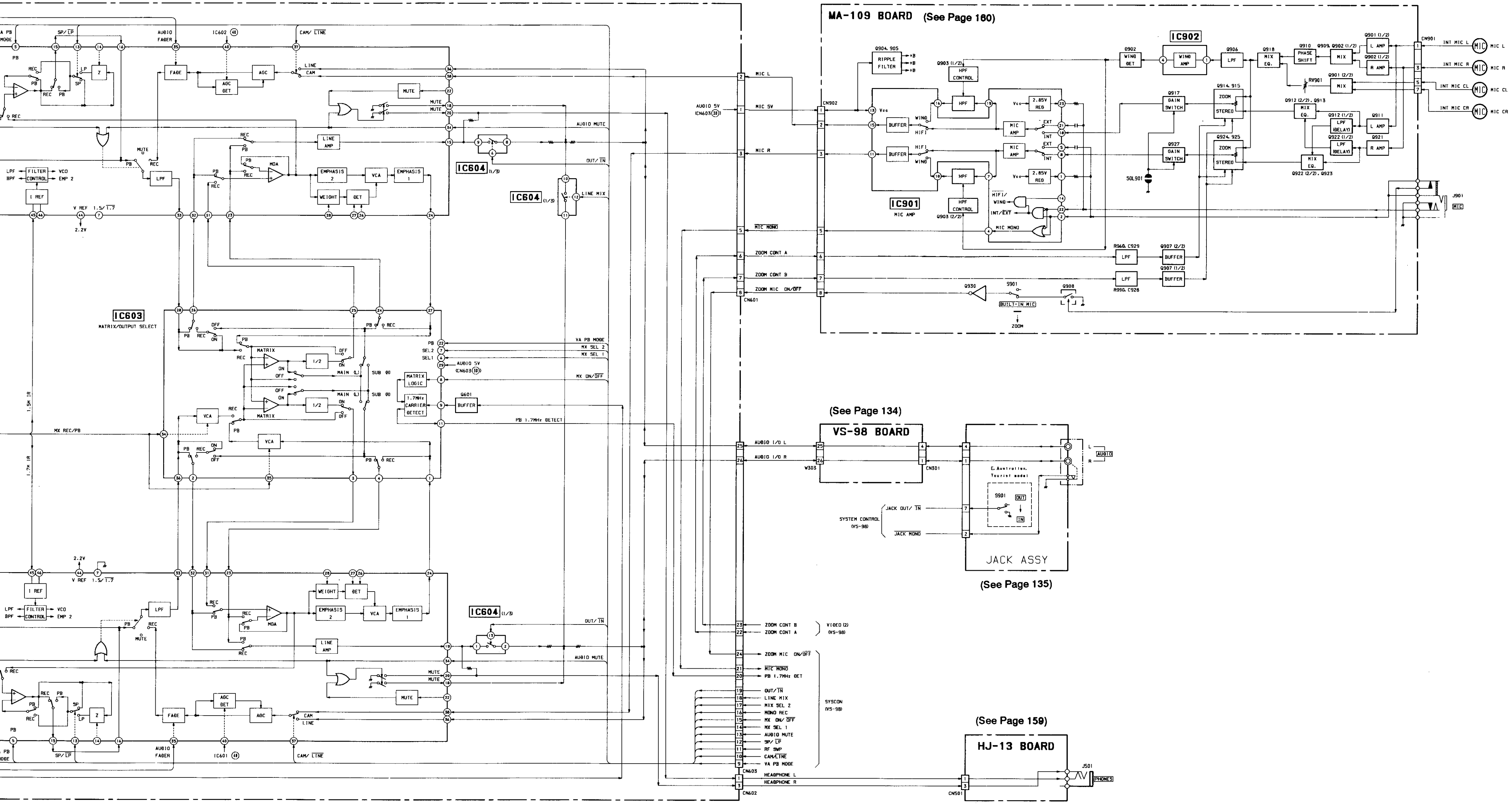

REC MODE
REC 1A
REC 2A
REC 1B
REC 2B

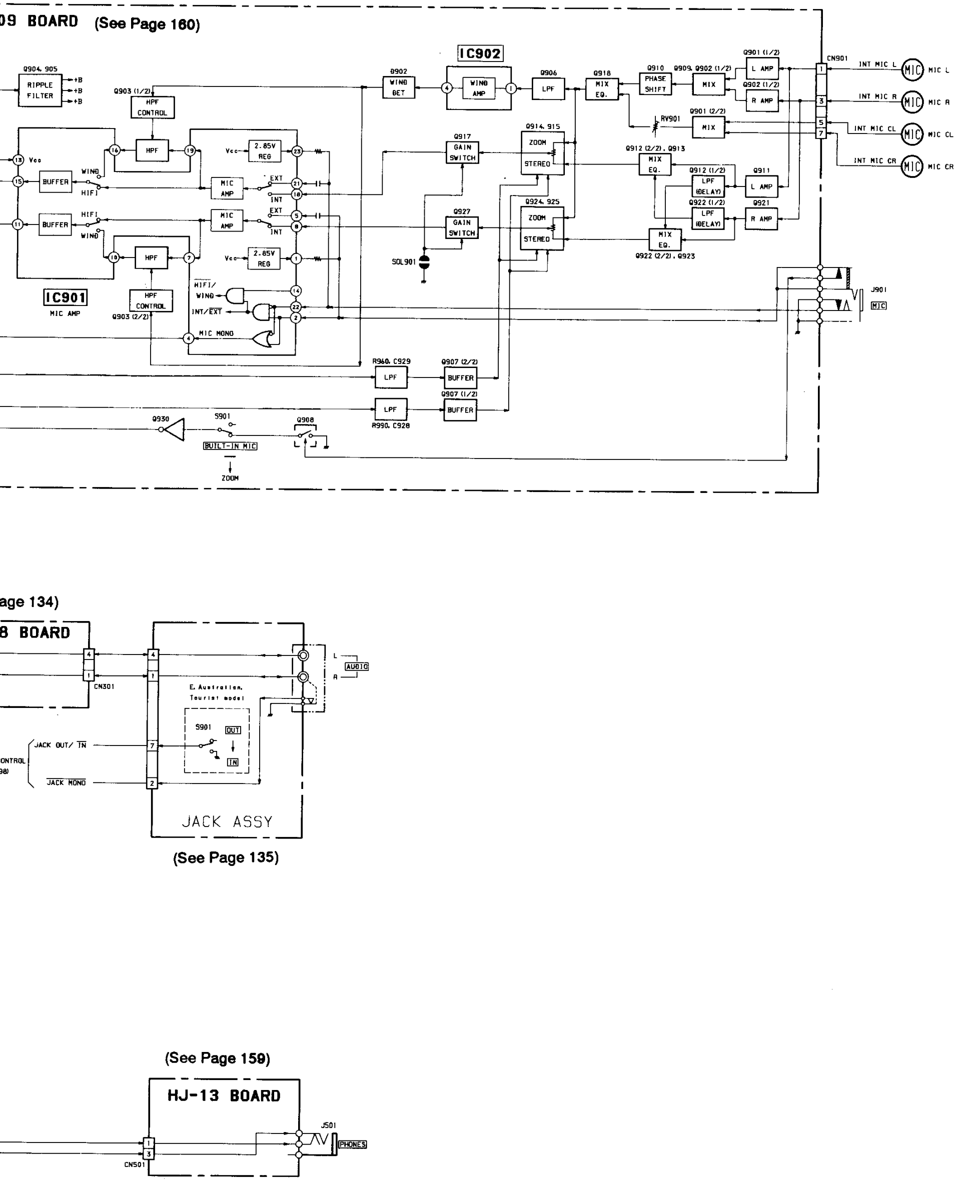
3-14. INDEX MARKER BLOCK DIAGRAM


VS-98 BOARD
(See Page 141)
IC261
INDEX RF
IC262
MARKER CONTROL
VIDEO (2)
REC PCM
PB PCM RF
REC AREA
HPF
Q261, 262
REC PCM AMP
Q263, 264
PB PCM AMP
LPF
LIMITER
D
Q
C
1/2
PHASE COMP
LPF
VCO
REC
PB
REC
PB
REC AREA
MODE
AREA
REC AREA
A VCC
D VCC
STBY
SS 5V (W152 ⑦)
JL270
R276
0.5Vp-p
V
IC261 ⑫ REC
Q265
VCO fo CONTROL
FMDT
FMCK
RF MOD
RF AR
XFOH
FOLL
RAE A
RAR C
RAMP
X CLR
X SCK
X CEM
SO
SI
DR SW
RF SW
C SYN
HPLS
MASK
DETS
CLK 0
CLK 1
X261
11.50MHz
VDD
VDD
SS 5V
(W152 ⑦)
W302
SYSTEM RESET
VTR SCK
MAKER CS
DATA TO MSTR
DATA TO SLAV
SYSTEM CONTROL
(VC-126)
RF SWP
(IC153 (99))
VTR SYNC
(IC401 ㉕)
INDEX VCO
(IC306 ⑫)
VIDEO (1)
3Vp-p
11.5 MHz
IC262 ㉜ REC/PB
09

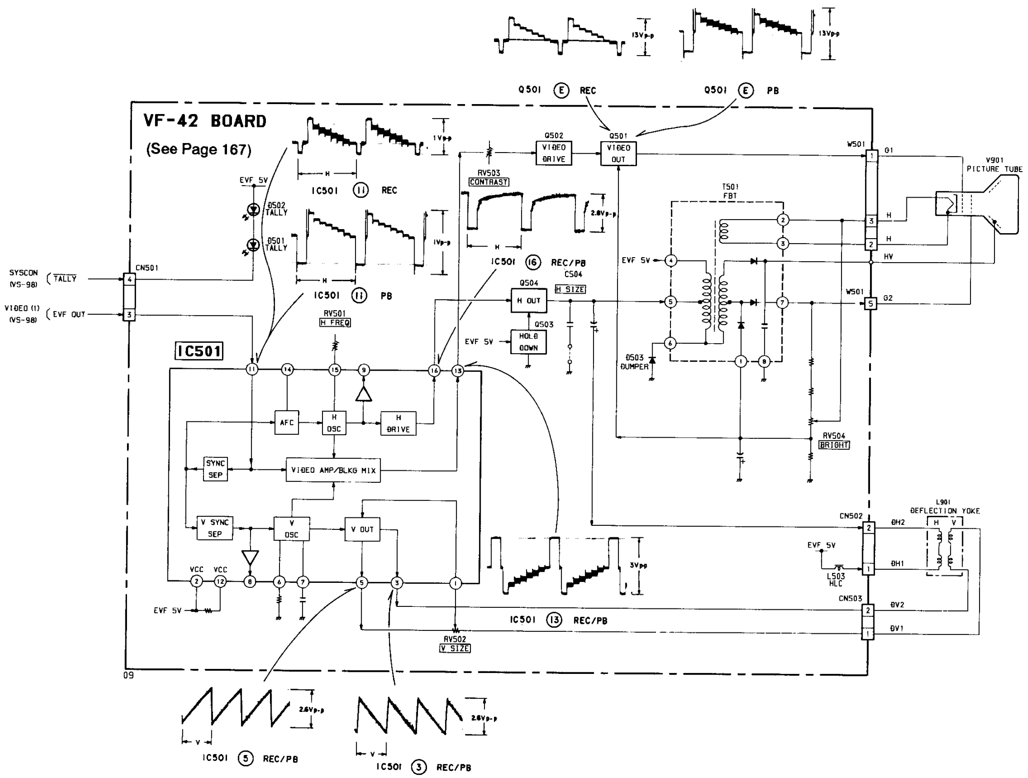
-15. AUDIO BLOCK DIAGRAM


AU-143 BOARD
(See Page 157)
CN603
PB RF
REC AFM
1.5 IR
AUDIO FADER
1.7 IR
1.5 DEV
MX REC PB
1.7 DEV
FSC
VIDEO (2) (VS-98)
VIDEO (1) (VS-98)
AUDIO 5V (CN603 38)
Q607, 608
FL601 1.5MHz BPF
FL602 1.7MHz BPF
Q603 RF AMP
Q604 RF AMP
PB 1.5M
PB 1.7M
1.5M DEV
1.7M DEV
Q606 MIX AMP
Q605
VA PB MODE
MONO REC
IC601
AFM PROCESS (L/L+R)
IC602
AFM PROCESS (R/L-R)
RF AGC
AGC DET
DOC DET
BPF
LIM
PHASE COMP (FM DEMOD)
LPF
MUTE DET
S/H
NOR
DO
MUTE OFF DELAY
PG DODUL DELAY
REC ON
VCO (FM MOD)
CCA
1/N
1/M
NTSC/PAL
Vcc
RF SWP
VA PB MODE
SP/LP
PB
REC
LP
SP
Z
MUTE
FILTER CONTROL
VCO
EMP 2
I REF
V REF 1.5/1.7
2.2V
1.5M IR
1.7M IR
FSC
MX REC/PB
AUDIO FADER
FADE
IC602 (48)
IC601 (48)
AGC
AGC DET
CAM/LINE
LINE
CAM
LINE AMP
MDA
EMPHASIS 2
VCA
EMPHASIS 1
WEIGHT
DET
IC603
MATRIX/OUTPUT SELECT
MATRIX
1/2
ON
OFF
MAIN (L)
MAIN (R)
SUB (R)
SUB (L)
MATRIX LOGIC
1.7MHz CARRIER DETECT
Q601 BUFFER
SEL2
SEL1
AUDIO 5V (CN603 38)
VA PB MODE
MX SEL 2
MX SEL 1
MX ON/OFF
PB 1.7MHz DETECT
IC604 (1/3)
IC604 (1/3)
IC604 (1/3)
AUDIO MUTE
OUT/IN
LINE MIX

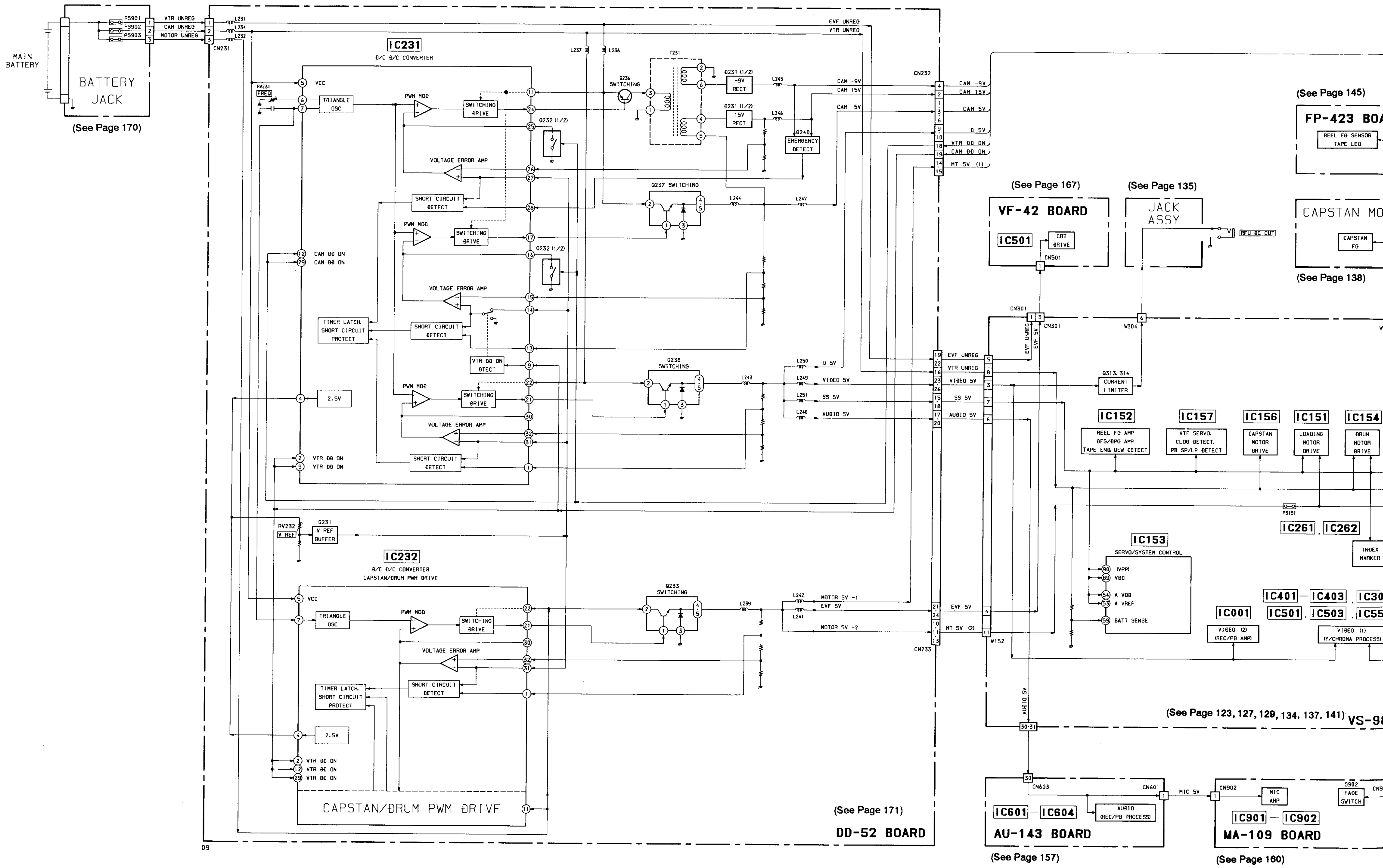

IC603
MATRIX/OUTPUT SELECT
IC604 (1/3)
IC602 ㊵
IC601 ㊵
AUDIO FADER
CAM/ LINE
SP/ LP
FADE
AGC
AGC DET
MUTE
LINE AMP
EMPHASIS 2
EMPHASIS 1
VCA
WEIGHT
DET
MOA
LPF
FILTER CONTROL
I REF
V REF 1.5/1.7
2.2V
MATRIX
1/2
MAIN (L)
MAIN (R)
SUB (L)
SUB (R)
MATRIX LOGIC
1.7MHz CARRIER DETECT
Q601 BUFFER
AUDIO 5V (CN603 ㉘)
VA PB MODE
MX SEL 2
MX SEL 1
MX ON/OFF
PB 1.7MHz DETECT
MX REC/PB
AUDIO MUTE
OUT/ IN
LINE MIX
MIC L
MIC 5V
MIC R
MIC MONO
ZOOM CONT A
ZOOM CONT B
ZOOM MIC ON/OFF
CN601
CN602
CN603
AUDIO I/O L
AUDIO I/O R
HEADPHONE L
HEADPHONE R
VIDEO (2) (VS-98)
SYSCON (VS-98)
RF SWP
MONO REC
MA-109 BOARD (See Page 160)
CN902
CN901
Q904, 905 RIPPLE FILTER
Q903 (1/2) HPF CONTROL
Q903 (2/2) HPF CONTROL
HPF
BUFFER
MIC AMP
2.85V REG
IC901 MIC AMP
IC902
Q902 WIND DET
WIND AMP
Q906 LPF
Q918 MIX EQ.
Q910 PHASE SHIFT
Q909, Q902 (1/2) MIX
Q901 (1/2) L AMP
Q902 (1/2) R AMP
Q901 (2/2) MIX
RV901
Q917 GAIN SWITCH
Q927 GAIN SWITCH
Q914, 915 ZOOM STEREO
Q924, 925 ZOOM STEREO
Q912 (2/2), Q913 MIX EQ.
Q912 (1/2) LPF (DELAY)
Q922 (1/2) LPF (DELAY)
Q922 (2/2), Q923 MIX EQ.
Q911 L AMP
Q921 R AMP
SOL901
R960, C929 LPF
R990, C928 LPF
Q907 (2/2) BUFFER
Q907 (1/2) BUFFER
Q930
S901 BUILT-IN MIC
Q908
ZOOM
INT MIC L
INT MIC R
INT MIC CL
INT MIC CR
J901 MIC
(See Page 134)
VS-98 BOARD
W303
CN301
E, Australian, Tourist model
S901 OUT IN
JACK OUT/ IN
JACK MONO
SYSTEM CONTROL (VS-98)
JACK ASSY
(See Page 135)
AUDIO L R
(See Page 159)
HJ-13 BOARD
CN501
J501 PHONES

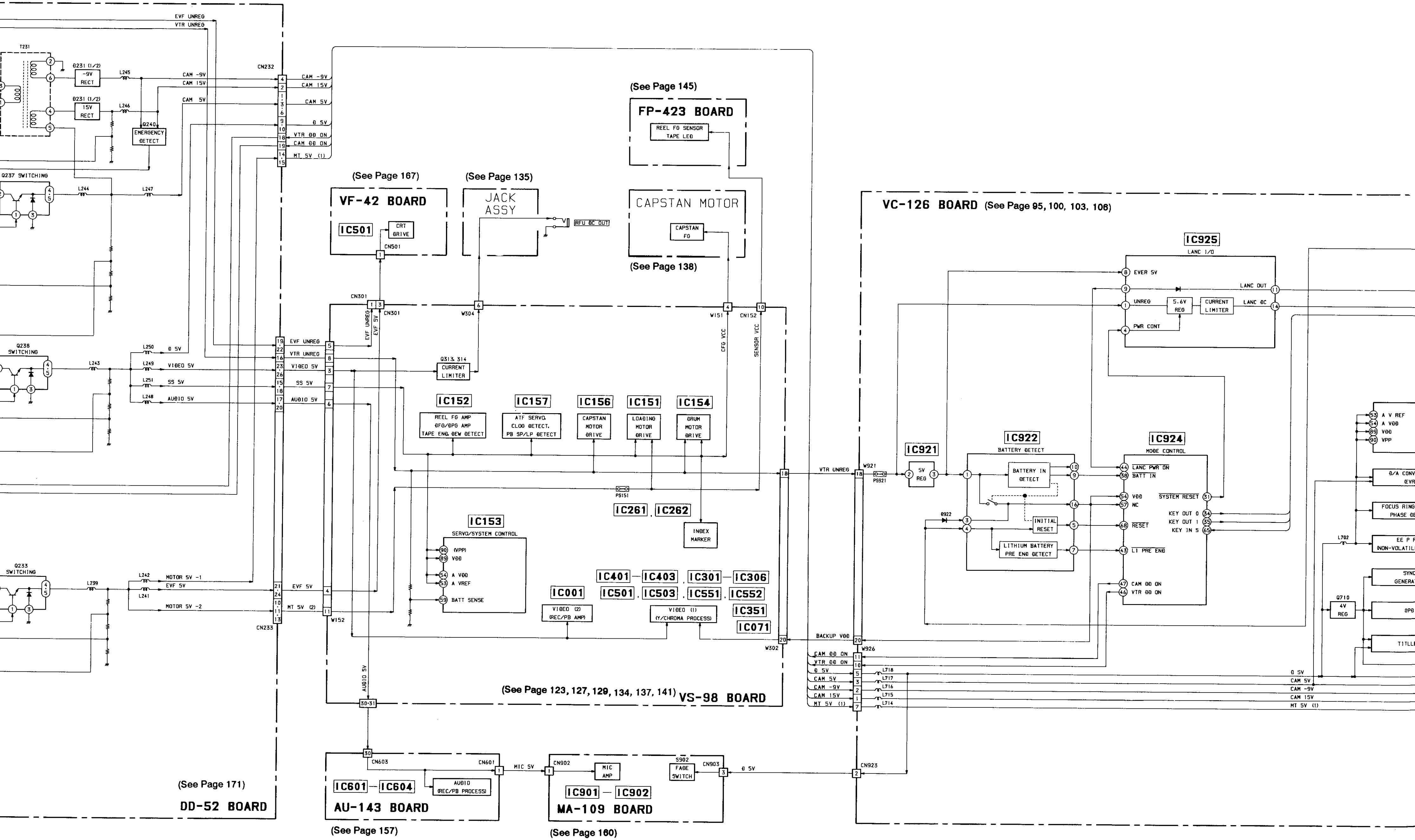

09 BOARD (See Page 160)
IC902
IC901
MIC AMP
RIPPLE FILTER
HPF CONTROL
HPF
BUFFER
MIC AMP
2.85V REG
WIND DET
WIND AMP
LPF
MIX EQ.
PHASE SHIFT
MIX
L AMP
R AMP
GAIN SWITCH
ZOOM
STEREO
LPF (DELAY)
SOL901
CN901
INT MIC L
INT MIC R
INT MIC CL
INT MIC CR
MIC L
MIC R
MIC CL
MIC CR
J901
MIC
BUFFER
S901
BUILT-IN MIC
ZOOM
age 134)
8 BOARD
CN301
AUDIO
E. Australian, Tourist model
S901
OUT
IN
JACK OUT/ IN
JACK MONO
ONTROL
JACK ASSY
(See Page 135)
(See Page 159)
HJ-13 BOARD
CN501
J501
PHONES

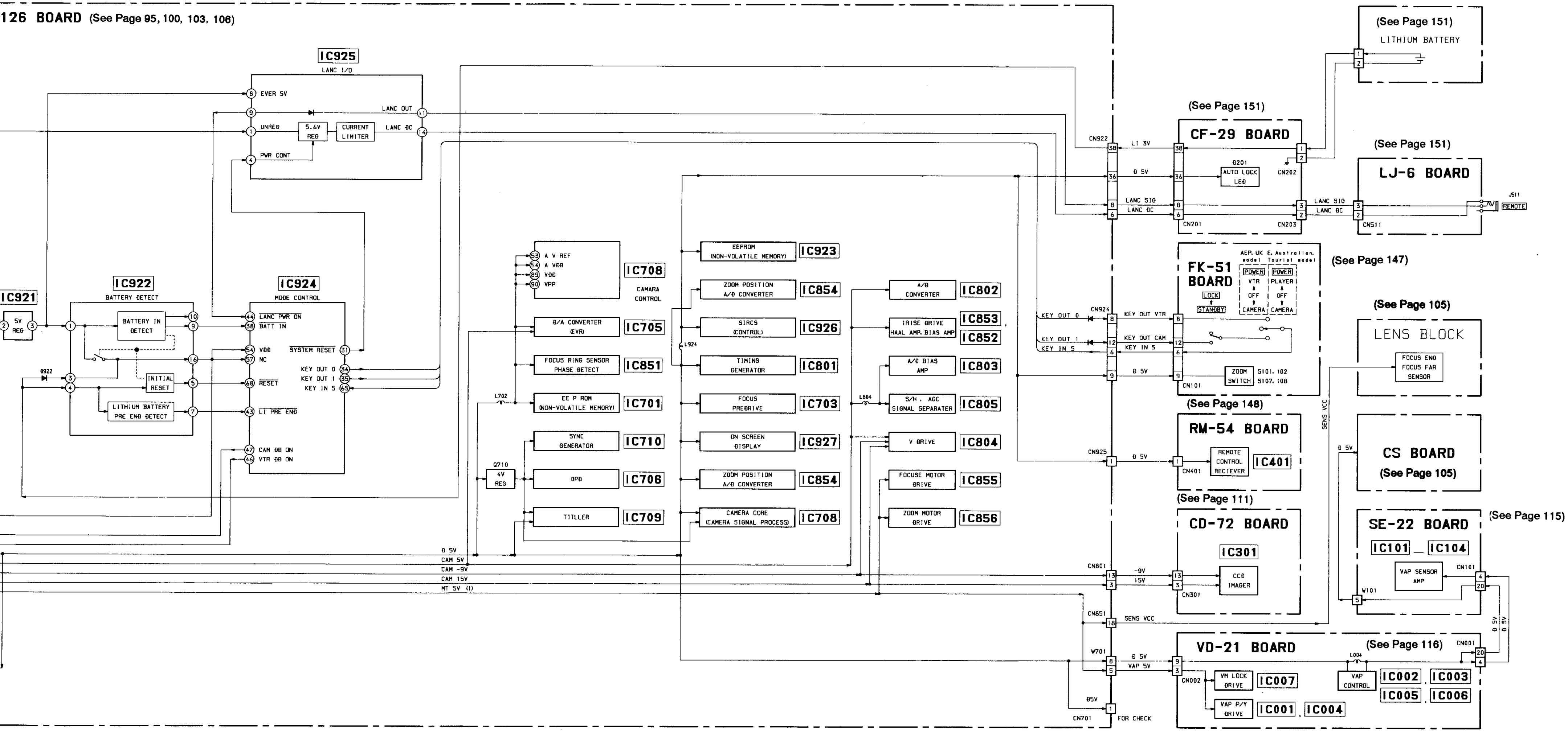
3-16. EVF BLOCK DIAGRAM


VF-42 BOARD
(See Page 167)
Q501 Ⓔ REC
Q501 Ⓔ PB
13Vp-p
1Vp-p
IC501 ⑪ REC
IC501 ⑪ PB
IC501 ⑯ REC/PB
2.8Vp-p
IC501
EVF 5V
Q502 TALLY
Q501 TALLY
SYSCON (VS-98) TALLY
VIDEO (1) (VS-98) EVF OUT
CN501
RV501 H FREQ
RV503 CONTRAST
Q502 VIDEO DRIVE
Q501 VIDEO OUT
Q504 H OUT
C504 H SIZE
Q503 HOLD DOWN
D503 DUMPER
T501 FBT
RV504 BRIGHT
W501
G1
H
HV
G2
V901 PICTURE TUBE
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
VCC
5Vp-p
RV502 V SIZE
IC501 ⑬ REC/PB
CN502
CN503
L901 DEFLECTION YOKE
DH2
DH1
DV2
DV1
L503 HLC
IC501 ⑤ REC/PB
IC501 ③ REC/PB

3-17. POWER BLOCK DIAGRAM

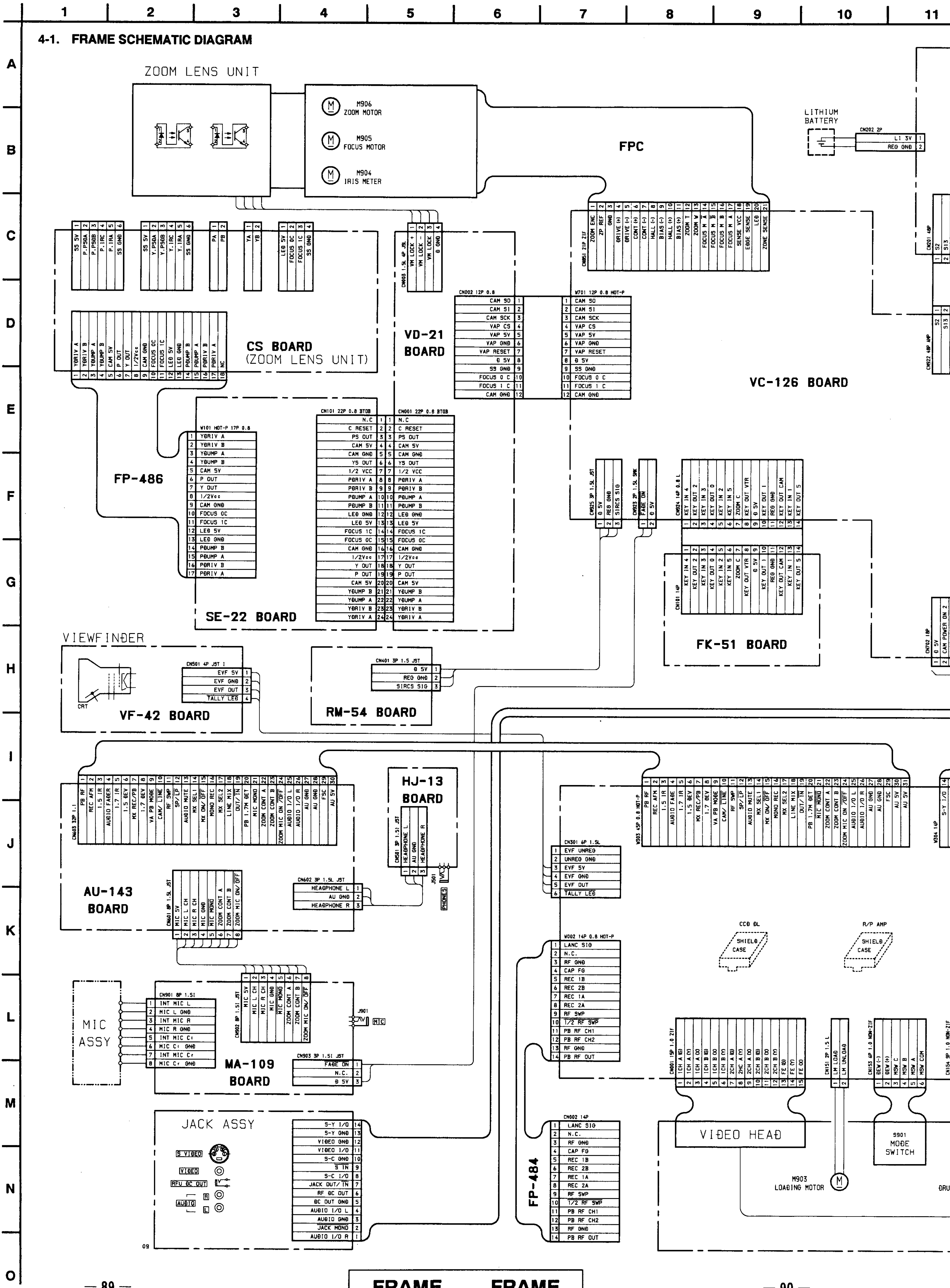

MAIN BATTERY
BATTERY JACK
PS901
PS902
PS903
VTR UNREG
CAM UNREG
MOTOR UNREG
(See Page 170)
CN231
L231
L234
L232
IC231
D/C D/C CONVERTER
RV231
FREQ
VCC
TRIANGLE OSC
PWM MOD
SWITCHING DRIVE
VOLTAGE ERROR AMP
SHORT CIRCUIT DETECT
TIMER LATCH. SHORT CIRCUIT PROTECT
VTR DD ON DTECT
2.5V
CAM DD ON
VTR DD ON
Q232 (1/2)
L237
L236
Q236 SWITCHING
T231
D231 (1/2)
-9V RECT
15V RECT
L245
L246
Q240 EMERGENCY DETECT
Q237 SWITCHING
L244
L247
Q238 SWITCHING
L243
L250
L249
L251
L248
D 5V
VIDEO 5V
SS 5V
AUDIO 5V
EVF UNREG
VTR UNREG
CN232
CAM -9V
CAM 15V
CAM 5V
D 5V
VTR DD ON
CAM DD ON
MT 5V (1)
RV232
V REF
Q231
V REF BUFFER
IC232
D/C D/C CONVERTER
CAPSTAN/DRUM PWM DRIVE
Q233 SWITCHING
L239
L242
L241
MOTOR 5V -1
EVF 5V
MOTOR 5V -2
CN233
CAPSTAN/DRUM PWM DRIVE
(See Page 171)
DD-52 BOARD
09
(See Page 167)
VF-42 BOARD
IC501
CRT DRIVE
CN501
(See Page 135)
JACK ASSY
RFU DC OUT
(See Page 145)
FP-423 BOA
REEL FG SENSOR TAPE LED
CAPSTAN MO
CAPSTAN FG
(See Page 138)
CN301
EVF UNREG
EVF 5V
W304
Q313, 314
CURRENT LIMITER
EVF UNREG
VTR UNREG
VIDEO 5V
SS 5V
AUDIO 5V
EVF 5V
MT 5V (2)
W152
IC152
REEL FG AMP
DFG/DPG AMP
TAPE END, DEW DETECT
IC157
ATF SERVO.
CLOG DETECT.
PB SP/LP DETECT
IC156
CAPSTAN MOTOR DRIVE
IC151
LOADING MOTOR DRIVE
IC154
DRUM MOTOR DRIVE
PS151
IC261 , IC262
INDEX MARKER
IC153
SERVO/SYSTEM CONTROL
(VPP)
VDD
A VDD
A VREF
BATT SENSE
IC401 — IC403 , IC30
IC001
IC501 , IC503 , IC55
VIDEO (2) (REC/PB AMP)
VIDEO (1) (Y/CHROMA PROCESS)
AUDIO 5V
(See Page 123, 127, 129, 134, 137, 141) VS-9
30·31
CN603
CN601
IC601 — IC604
AUDIO (REC/PB PROCESS)
AU-143 BOARD
(See Page 157)
MIC 5V
CN902
MIC AMP
S902 FADE SWITCH
CN9
IC901 — IC902
MA-109 BOARD
(See Page 160)

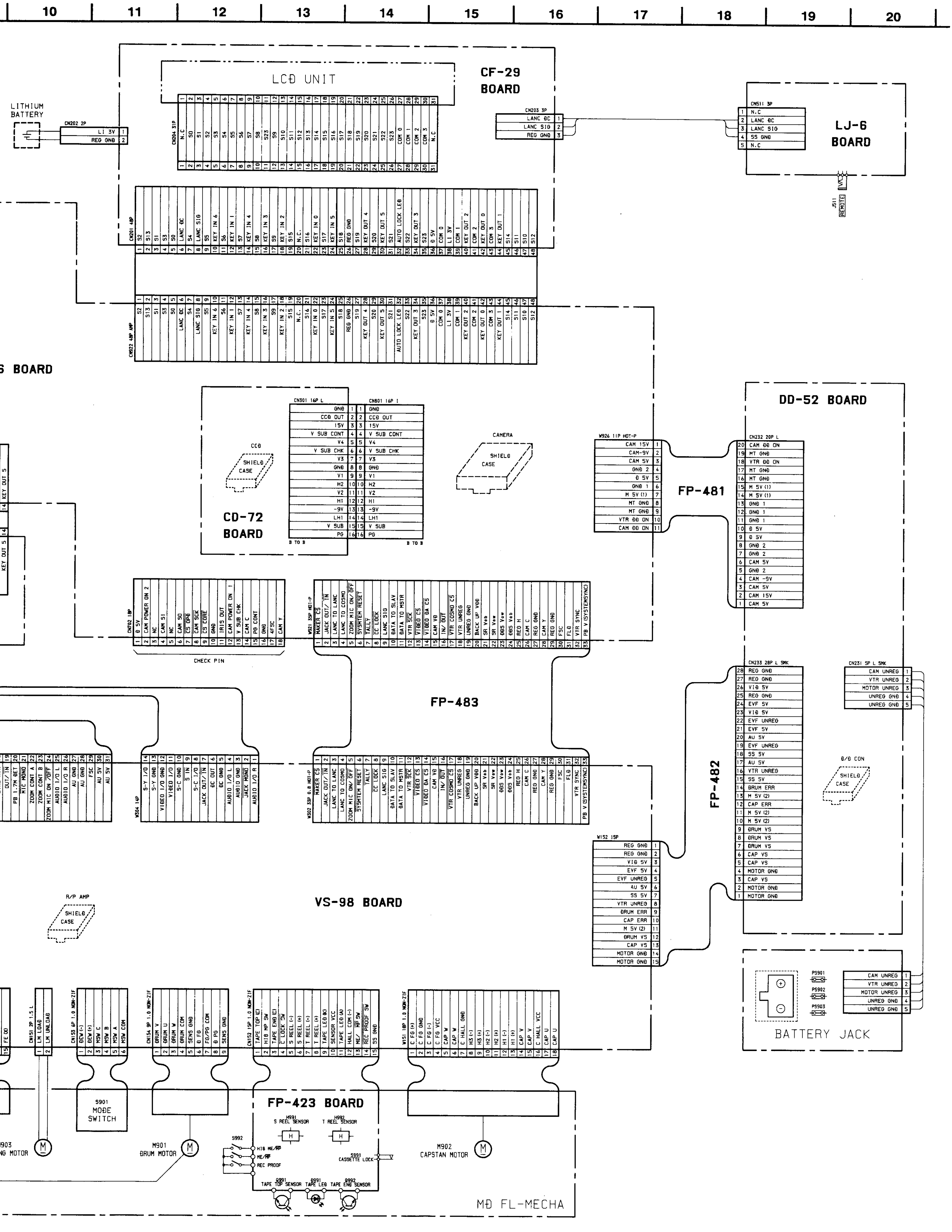

DD-52 BOARD
(See Page 171)
T231
Q231 (1/2) -9V RECT
Q231 (1/2) 15V RECT
Q240 EMERGENCY DETECT
Q237 SWITCHING
Q238 SWITCHING
Q233 SWITCHING
L245
L246
L244
L247
L250
L249
L251
L248
L243
L242
L241
L239
EVF UNREG
VTR UNREG
CAM -9V
CAM 15V
CAM 5V
D 5V
VTR DD ON
CAM DD ON
MT 5V (1)
VIDEO 5V
SS 5V
AUDIO 5V
MOTOR 5V -1
EVF 5V
MOTOR 5V -2
MT 5V (2)
CN232
CN233
VF-42 BOARD
(See Page 167)
IC501
CRT DRIVE
CN501
JACK ASSY
(See Page 135)
RFU DC OUT
FP-423 BOARD
(See Page 145)
REEL FG SENSOR TAPE LED
CAPSTAN MOTOR
CAPSTAN FG
(See Page 138)
CN301
W304
W151
CN152
CFG VCC
SENSOR VCC
Q313, 314 CURRENT LIMITER
IC152
REEL FG AMP DFG/DPG AMP TAPE END/DEW DETECT
IC157
ATF SERVO, CLOG DETECT, PB SP/LP DETECT
IC156
CAPSTAN MOTOR DRIVE
IC151
LOADING MOTOR DRIVE
IC154
DRUM MOTOR DRIVE
PS151
IC261, IC262
INDEX MARKER
IC153
SERVO/SYSTEM CONTROL
(VPP)
VDD
A VDD
A VREF
BATT SENSE
IC001
VIDEO (2) (REC/PB AMP)
IC401 — IC403
IC501
IC503
IC301 — IC306
IC551
IC552
IC351
IC071
VIDEO (1) (Y/CHROMA PROCESS)
W152
W302
AUDIO 5V
(See Page 123, 127, 129, 134, 137, 141) VS-98 BOARD
AU-143 BOARD
(See Page 157)
CN603
CN601
IC601 — IC604
AUDIO (REC/PB PROCESS)
MIC 5V
MA-109 BOARD
(See Page 160)
CN902
MIC AMP
S902 FADE SWITCH
CN903
IC901 — IC902
CN923
VC-126 BOARD (See Page 95, 100, 103, 106)
VTR UNREG
W921
PS921
IC921
5V REG
IC922
BATTERY DETECT
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
D922
IC924
MODE CONTROL
LANC PWR ON
BATT IN
VDD
NC
RESET
LI PRE END
CAM DD ON
VTR DD ON
SYSTEM RESET
KEY OUT 0
KEY OUT 1
KEY IN 5
IC925
LANC I/O
EVER 5V
UNREG
PWR CONT
5.6V REG
CURRENT LIMITER
LANC OUT
LANC DC
A V REF
A VDD
VDD
VPP
D/A CONV
FOCUS RING PHASE DE
EE P R (NON-VOLATIL
SYNC GENERA
OPD
TITLE
L702
Q710 4V REG
BACKUP VDD
W926
L718
L717
L716
L715
L714
D 5V
CAM 5V
CAM -9V
CAM 15V
MT 5V (1)


126 BOARD (See Page 95, 100, 103, 106)
IC925
LANC I/O
EVER 5V
UNREG
5.6V REG
CURRENT LIMITER
PWR CONT
LANC OUT
LANC DC
IC921
5V REG
IC922
BATTERY DETECT
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
D922
IC924
MODE CONTROL
LANC PWR ON
BATT IN
VDD
NC
RESET
LI PRE END
CAM DD ON
VTR DD ON
SYSTEM RESET
KEY OUT 0
KEY OUT 1
KEY IN 5
A V REF
A VDD
VDD
VPP
IC708
CAMARA CONTROL
D/A CONVERTER (EVR)
IC705
FOCUS RING SENSOR PHASE DETECT
IC851
EE P ROM (NON-VOLATILE MEMORY)
IC701
SYNC GENERATOR
IC710
OPD
IC706
TITLLER
IC709
L702
Q710
4V REG
EEPROM (NON-VOLATILE MEMORY)
IC923
ZOOM POSITION A/D CONVERTER
IC854
SIRCS (CONTROL)
IC926
TIMING GENERATOR
IC801
FOCUS PREDRIVE
IC703
ON SCREEN DISPLAY
IC927
ZOOM POSITION A/D CONVERTER
IC854
CAMERA CORE (CAMERA SIGNAL PROCESS)
IC708
L924
A/D CONVERTER
IC802
IRISE DRIVE HAAL AMP, BIAS AMP
IC853
IC852
A/D BIAS AMP
IC803
L804
S/H, AGC SIGNAL SEPARATER
IC805
V DRIVE
IC804
FOCUSE MOTOR DRIVE
IC855
ZOOM MOTOR DRIVE
IC856
D 5V
CAM 5V
CAM -9V
CAM 15V
MT 5V (1)
CN922
LI 3V
D 5V
LANC SIG
LANC DC
CN924
KEY OUT 0
KEY OUT 1
KEY IN 5
KEY OUT VTR
KEY OUT CAM
KEY IN 5
D 5V
CN925
D 5V
CN801
-9V
15V
CN851
SENS VCC
W701
D 5V
VAP 5V
D5V
CN701
FOR CHECK
(See Page 151)
CF-29 BOARD
D201
AUTO LOCK LED
CN201
CN202
CN203
(See Page 151)
LITHIUM BATTERY
(See Page 151)
LJ-6 BOARD
LANC SIG
LANC DC
CN511
J511
REMOTE
FK-51 BOARD
(See Page 147)
AEP, UK E, Australian, model Tourist model
POWER
VTR
OFF
CAMERA
PLAYER
LOCK
STANDBY
ZOOM SWITCH
S101, 102
S107, 108
CN101
(See Page 148)
RM-54 BOARD
REMOTE CONTROL RECIEVER
IC401
CN401
(See Page 111)
CD-72 BOARD
IC301
CCD IMAGER
CN301
(See Page 105)
LENS BLOCK
FOCUS END FOCUS FAR SENSOR
SENS VCC
CS BOARD
(See Page 105)
D 5V
SE-22 BOARD
(See Page 115)
IC101 – IC104
VAP SENSOR AMP
CN101
W101
D 5V
D 5V
VD-21 BOARD
(See Page 116)
CN001
L004
CN002
VM LOCK DRIVE
IC007
VAP CONTROL
IC002, IC003
IC005, IC006
VAP P/Y DRIVE
IC001, IC004

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
ZOOM LENS UNIT
M906 ZOOM MOTOR
M905 FOCUS MOTOR
M904 IRIS METER
FPC
LITHIUM BATTERY
CN202 2P
LI 3V
REG GND
CS BOARD (ZOOM LENS UNIT)
VD-21 BOARD
CN003 1.5L 4P JST
VM LOCK +
VM LOCK -
VM LOCK
D GND
CN002 12P 0.8
W701 12P 0.8 HOT-P
CAM SO
CAM SI
CAM SCK
VAP CS
VAP 5V
VAP GND
VAP RESET
D 5V
SS GND
FOCUS 0 C
FOCUS 1 C
CAM GND
CN951 21P ZIF
VC-126 BOARD
FP-486
W101 HOT-P 17P 0.8
CN101 22P 0.8 BTOB
CN001 22P 0.8 BTOB
SE-22 BOARD
CN925 3P 1.5L JST
CN923 2P 1.5L SMK
CN924 14P 0.8 L
CN101 14P
FK-51 BOARD
VIEWFINDER
CN501 4P JST I
EVF 5V
EVF GND
EVF OUT
TALLY LED
CRT
VF-42 BOARD
CN401 3P 1.5 JST
D 5V
REG GND
SIRCS SIG
RM-54 BOARD
CN403 32P 1.1
HJ-13 BOARD
CN501 3P 1.5L JST
J501
PHONES
CN602 3P 1.5L JST
HEADPHONE L
AU GND
HEADPHONE R
AU-143 BOARD
CN401 8P 1.5L JST
W303 45P 0.8 HOT-P
W304 14P
CN301 6P 1.5L
EVF UNREG
UNREG GND
EVF 5V
EVF GND
EVF OUT
TALLY LED
W002 14P 0.8 HOT-P
CCD BL
SHIELD CASE
R/P AMP
SHIELD CASE
MIC ASSY
CN901 8P 1.5I
INT MIC L
MIC L GND
INT MIC R
MIC R GND
INT MIC C
MIC C GND
INT MIC C
MIC C GND
CN902 8P 1.5I JST
J901
MIC
CN903 3P 1.5I JST
FADE ON
N.C.
D 5V
MA-109 BOARD
CN001 15P 1.0 ZIF
CN151 2P 1.5 L
LM LOAD
LM UNLOAD
CN153 6P 1.0 NON-ZIF
CN154 5P 1.0 NON-ZIF
JACK ASSY
S VIDEO
VIDEO
RFU DC OUT
AUDIO
R
L
S-Y I/O
S-Y GND
VIDEO GND
VIDEO I/O
S-C GND
S IN
S-C I/O
JACK OUT/IN
RF DC OUT
DC OUT GND
AUDIO I/O L
AUDIO GND
JACK MONO
AUDIO I/O R
CN002 14P
LANC SIG
N.C.
RF GND
CAP FG
REC 1B
REC 2B
REC 1A
REC 2A
RF SWP
1/2 RF SWP
PB RF CH1
PB RF CH2
RF GND
PB RF OUT
FP-484
VIDEO HEAD
S901 MODE SWITCH
M903 LOADING MOTOR


10
11
12
13
14
15
16
17
18
19
20
LCD UNIT
CF-29 BOARD
LITHIUM BATTERY
CN202 2P
LI 3V
REG GND
CN204 31P
CN201 48P
CN203 3P
LANC DC
LANC SIG
REG GND
CN511 3P
N.C
LANC DC
LANC SIG
SS GND
N.C
LJ-6 BOARD
J511
REMOTE
CN922 48P AMP
6 BOARD
CN301 16P L
CN801 16P I
GND
CCD OUT
15V
V SUB CONT
V4
V SUB CHK
V3
GND
V1
H2
V2
H1
-9V
LH1
V SUB
PG
B TO B
CCD
SHIELD CASE
CAMERA
SHIELD CASE
CD-72 BOARD
DD-52 BOARD
W926 11P HOT-P
CAM 15V
CAM-9V
CAM 5V
GND 2
D 5V
GND 1
M 5V (1)
MT GND
MT GND
VTR DD ON
CAM DD ON
FP-481
CN232 20P L
CN702 18P
CHECK PIN
W921 33P HOT-P
FP-483
CN233 28P L SMK
CN231 5P L SMK
CAM UNREG
VTR UNREG
MOTOR UNREG
UNREG GND
UNREG GND
FP-482
D/D CON
SHIELD CASE
W304 14P
W302 33P 0.8 HOT-P
W152 15P
REG GND
REG GND
VIO 5V
EVF 5V
EVF UNREG
AU 5V
SS 5V
VTR UNREG
DRUM ERR
CAP ERR
M 5V (2)
DRUM VS
CAP VS
MOTOR GND
MOTOR GND
R/P AMP
SHIELD CASE
VS-98 BOARD
PS901
PS902
PS903
BATTERY JACK
CN151 2P 1.5 L
LM LOAD
LM UNLOAD
CN153 6P 1.0 NON-ZIF
CN154 9P 1.0 NON-ZIF
CN152 15P 1.0 NON-ZIF
W151 18P 1.0 NON-ZIF
S901 MODE SWITCH
FP-423 BOARD
H991 S REEL SENSOR
H992 T REEL SENSOR
S992
HI8 ME/MP
ME/MP
REC PROOF
S991 CASSETTE LOCK
Q991 TAPE TOP SENSOR
D991 TAPE LED
Q992 TAPE END SENSOR
M903
NG MOTOR
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
MD FL-MECHA

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

VC-126 (CAMERA, LENS DRIVE, MODE CONTROL) PRINTED WIRING BOARD

— Ref. No. VC-126 BOARD: 2000 series —

- **For printed wiring boards.**
- VC-126 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ● : Through hole is omitted.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

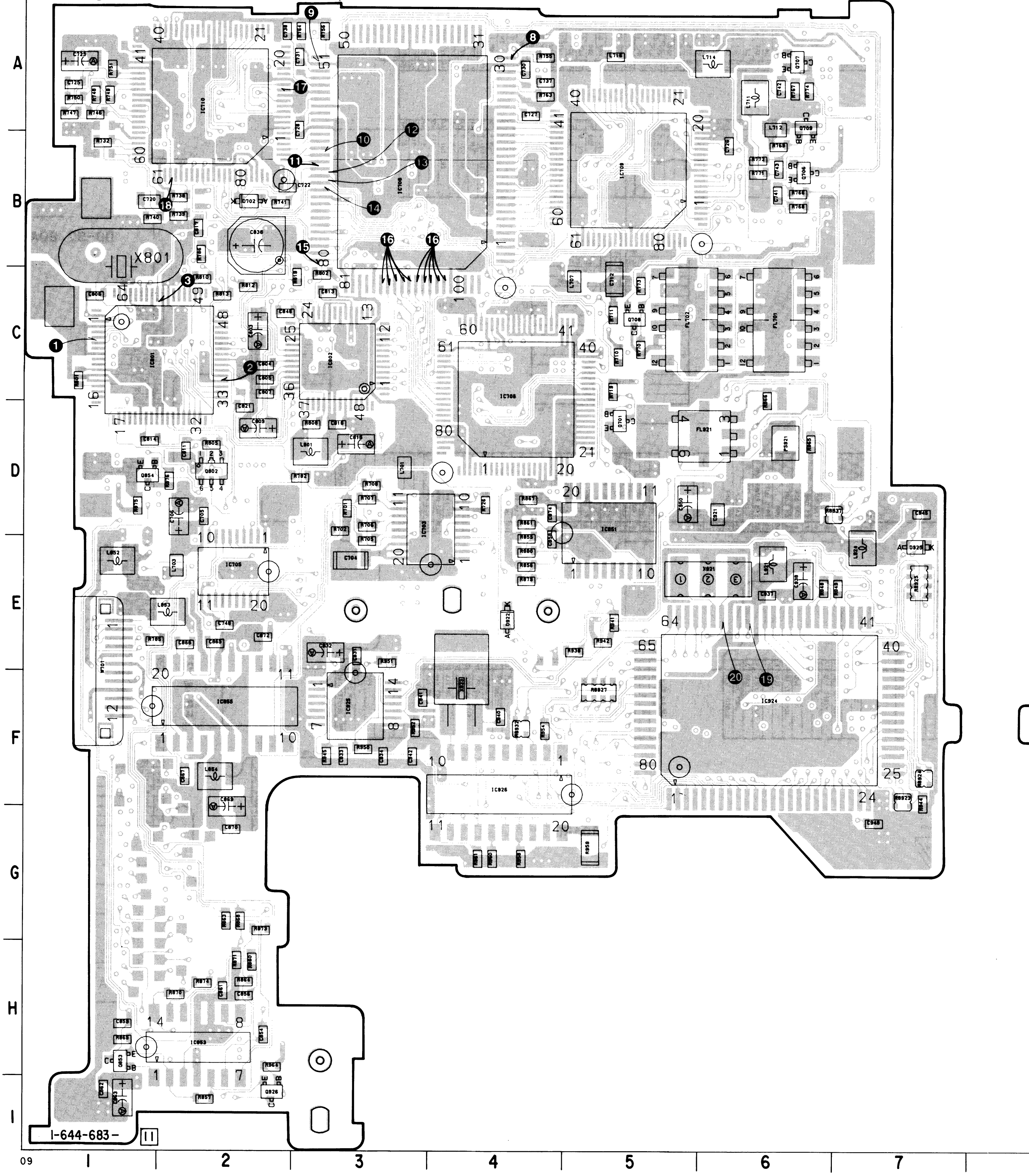
〈 DIODE 〉

D702	8-719-404-46	DIODE	MA110
D923	8-719-404-46	DIODE	MA110
D924	8-719-404-46	DIODE	MA110
D925	8-719-404-46	DIODE	MA110
D927	8-719-404-46	DIODE	MA110
D929	8-719-421-27	DIODE	MA728

〈 IC

IC701	8-759-044-78	IC
IC702	8-752-837-51	IC
IC703	8-752-337-36	IC
IC705	8-759-064-36	IC
IC706	8-759-069-18	IC
IC707	8-759-519-14	IC
IC708	8-752-347-93	IC
IC709	8-759-518-81	IC
IC710	8-752-348-92	IC
IC711	8-759-243-19	IC
IC801	8-752-341-09	IC
IC802	8-752-056-39	IC
IC803	8-752-053-26	IC
IC804	8-752-327-48	IC
IC805	8-752-054-61	IC

VC-126 BOARD (COMPONENT SIDE)


A
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1
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IC710
IC706
IC709
IC801
IC802
IC708
IC703
IC705
IC851
IC805
IC925
IC924
IC926
IC853
FL702
FL701
FL821
X801
X821
1-644-683-
11

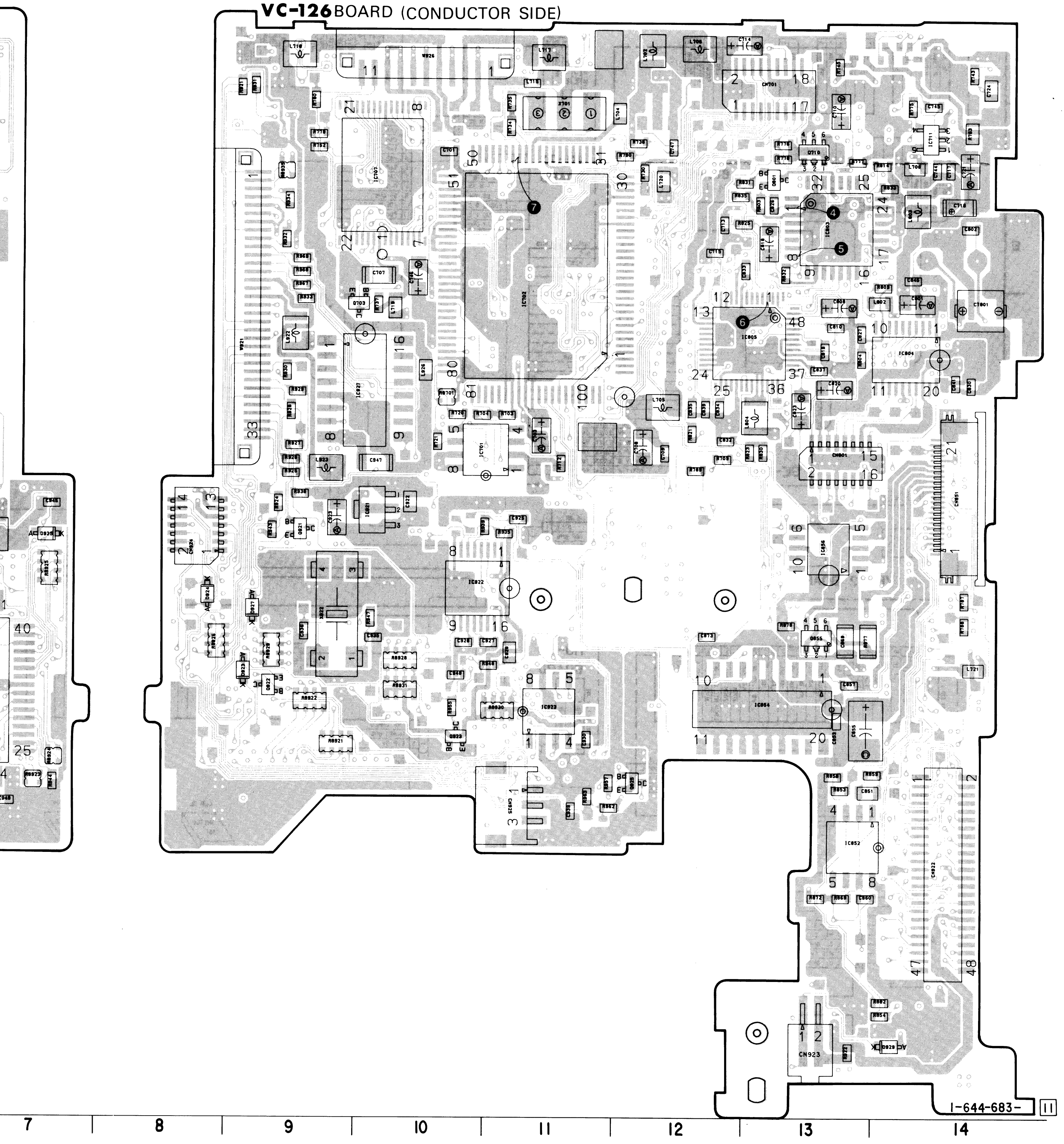
〈 IC 〉

IC701	8-759-044-78	IC	AK6420F
IC702	8-752-837-51	IC	CXP80624-297Q
IC703	8-752-337-36	IC	CXD2104N
IC705	8-759-064-36	IC	MB88346BPFV
IC706	8-759-069-18	IC	CXD2103AR
IC707	8-759-519-14	IC	MB8464-15LLPFTN
IC708	8-752-347-93	IC	CXD2100AQ
IC709	8-759-518-81	IC	CXD2112R
IC710	8-752-348-92	IC	CXD2101AR
IC711	8-759-243-19	IC	TC7SU04F
IC801	8-752-341-09	IC	CXD1256R
IC802	8-752-056-39	IC	CXA1507BR
IC803	8-752-053-26	IC	CXA1399Q
IC804	8-752-327-48	IC	CXD1250N
IC805	8-752-054-61	IC	CXA1390AR
IC851	8-759-513-26	IC	XRU5846FS
IC852	8-759-701-24	IC	NJM3414M
IC853	8-759-998-96	IC	LM324D
IC854	8-759-059-08	IC	LC78865M
IC855	8-759-038-81	IC	MPC1724M
IC856	8-759-823-51	IC	LB1830M
IC921	8-759-937-54	IC	S-81250HG-RD-S
IC922	8-759-511-22	IC	CXA1448N
IC923	8-759-044-78	IC	AK6420F
IC924	8-759-080-18	IC	uPD75316GF-289-3B9
IC925	8-759-999-02	IC	TL1596CDB
IC926	8-759-145-63	IC	uPD7564G-540
IC927	8-759-069-29	IC	uPD6456GS-618

〈 TRANSISTOR 〉

Q701	8-729-905-61	TRANSISTOR	DTC124EU
Q703	8-729-402-42	TRANSISTOR	UN5213
Q706	8-729-010-60	TRANSISTOR	MSA1586-BC
Q707	8-729-010-60	TRANSISTOR	MSA1586-BC
Q708	8-729-010-75	TRANSISTOR	MSC4116-B/C
Q709	8-729-010-75	TRANSISTOR	MSC4116-B/C
Q710	8-729-402-84	TRANSISTOR	XN4601
Q801	8-729-010-75	TRANSISTOR	MSC4116-B/C
Q802	8-729-403-27	TRANSISTOR	XN4401
Q853	8-729-010-75	TRANSISTOR	MSC4116-B/C
Q854	8-729-907-00	TRANSISTOR	DTC114EU
Q855	8-729-403-27	TRANSISTOR	XN4401
Q921	8-729-905-99	TRANSISTOR	DTC114TU
Q922	8-729-905-99	TRANSISTOR	DTC114TU
Q923	8-729-907-00	TRANSISTOR	DTC114EU
Q925	8-729-403-35	TRANSISTOR	UN5113
Q926	8-729-905-99	TRANSISTOR	DTC114TU

VC-126 BOARD (CONDUCTOR SIDE)


IC702
IC703
IC803
IC805
IC804
IC701
IC927
IC922
IC921
IC923
IC854
IC856
IC852
IC711
CN701
CN801
CN851
CN922
CN923
CN925
CN924
W921
W926
X701
X922
1-644-683-11
7
8
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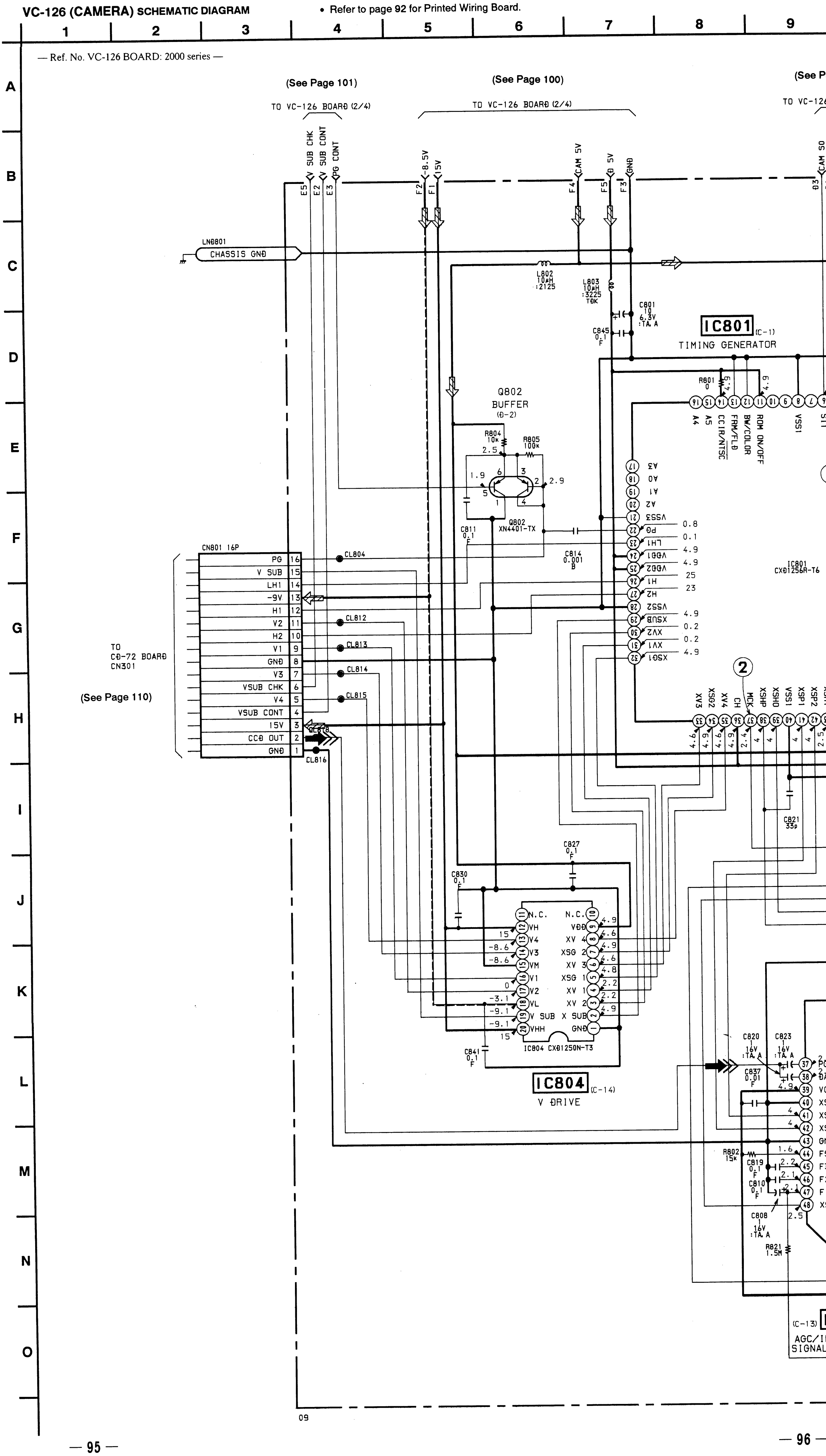
12
13
14

VC-126 (CAMERA) SCHEMATIC DIAGRAM

- Refer to page **92** for Printed Wiring Board.

— Ref. No. VC-126 BOARD: 2000 series —



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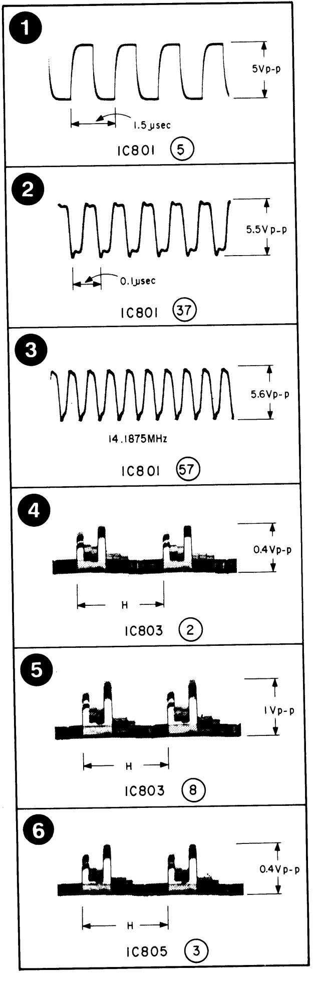
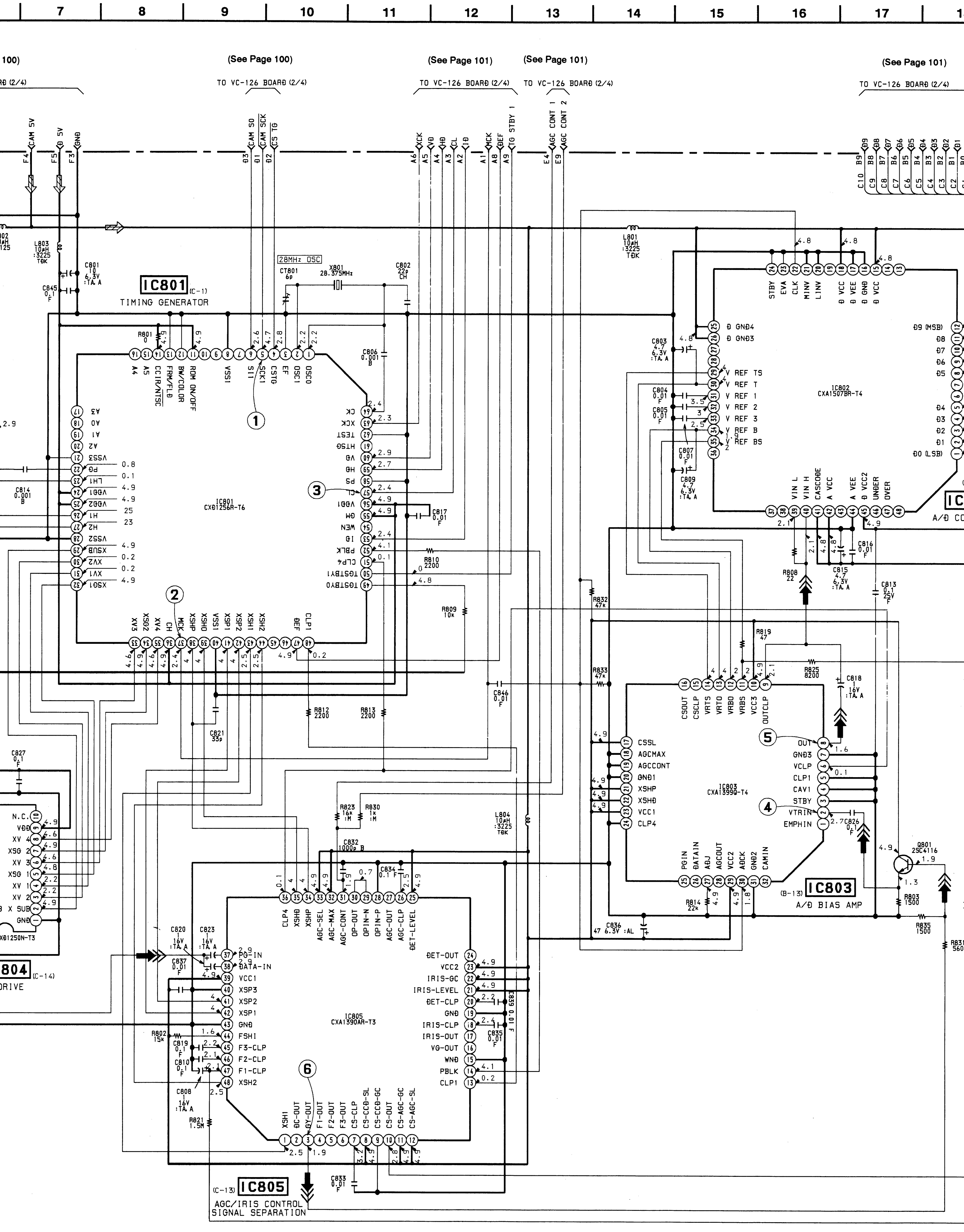
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
(See Page 101)
TO VC-126 BOARD (2/4)
(See Page 100)
TO VC-126 BOARD (2/4)
V SUB CHK
SUB CONT
PG CONT
E5
E2
E3
8.5V
15V
F2
F1
CAM 5V
F4
D 5V
F5
GND
F3
LN0801
CHASSIS GND
L802 10μH :2125
L803 10μH :3225 TDK
C801 10 6.3V :TA A
C845 0.1 F
IC801 (C-1)
TIMING GENERATOR
R801 0
Q802
BUFFER
(D-2)
R804 10k
R805 100k
2.5
1.9
2.9
Q802 XN4401-TX
C811 0.1 F
C814 0.001 B
ROM ON/OFF
BW/COLOR
FRM/FLD
CCIR/NTSC
A5
A4
VSS1
A3
A0
A1
A2
VSS3
PG
LH1
VDD1
VDD2
H1
H2
VSS2
XSUB
XV2
XV1
XSG1
0.8
0.1
4.9
4.9
25
23
4.9
0.2
0.2
4.9
IC801 CXD1256R-T6
XV3
XSG2
XV4
CH
MCK
XSHP
XSHD
VSS1
XSP1
XSP2
CN801 16P
PG 16
V SUB 15
LH1 14
-9V 13
H1 12
V2 11
H2 10
V1 9
GND 8
V3 7
VSUB CHK 6
V4 5
VSUB CONT 4
15V 3
CCD OUT 2
GND 1
CL804
CL812
CL813
CL814
CL815
CL816
TO CD-72 BOARD CN301
(See Page 110)
C827 0.1 F
C830 0.1 F
C821 33p
N.C.
VH
V4
V3
VM
V1
V2
VL
V SUB
VHH
N.C.
VDD
XV 4
XSG 2
XV 3
XSG 1
XV 1
XV 2
X SUB
GND
15
-8.6
-8.6
0
-3.1
-9.1
-9.1
15
4.9
4.6
4.9
4.6
4.8
2.2
2.2
4.9
IC804 CXD1250N-T3
C841 0.1 F
IC804 (C-14)
V DRIVE
C820 16V :TA A
C823 16V :TA A
C837 0.01 F
R802 15k
C819 0.1 F
C810 0.1 F
C808 16V :TA A
R821 1.5M
(C-13)
AGC/I
SIGNAL
09

VC-126 BOARD (1/4)

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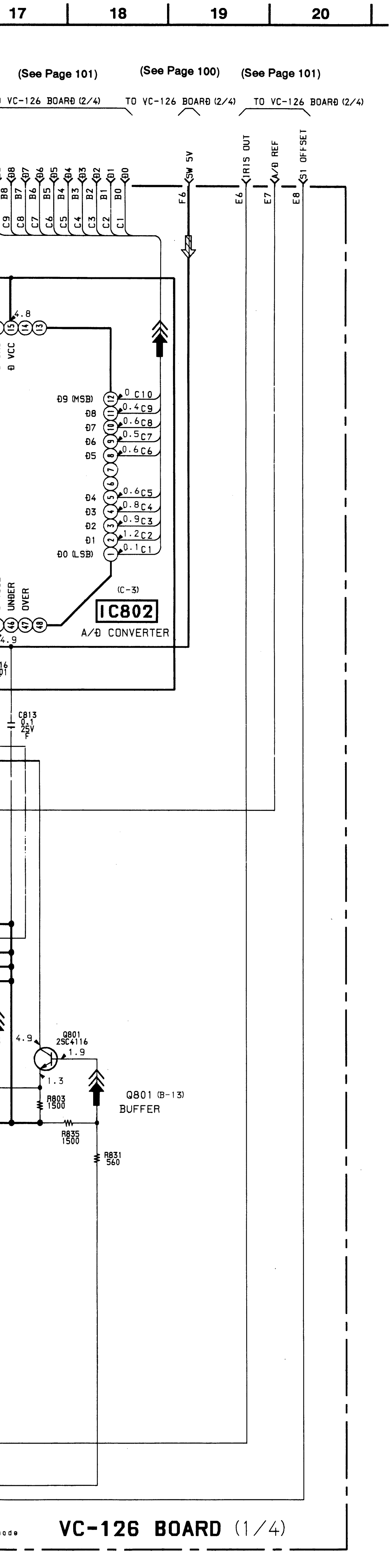
16
17
(See Page 100)
(See Page 100)
(See Page 101)
(See Page 101)
(See Page 101)
TO VC-126 BOARD (2/4)
CAM 5V
D 5V
GND
CAM SO
CAM SCK
CS TG
XCK
VD
HD
CL
ID
MCK
DEF
TG STBY 1
AGC CONT 1
AGC CONT 2
L801 10µH :3225 TDK
L803 10µH :3225 TDK
L804 10µH :3225 TDK
28MHz OSC
X801 28.375MHz
CT801 6p
C802 22p CH
IC801
(C-1)
TIMING GENERATOR
IC801 CXD1256R-T6
IC802 CXA1507BR-T4
IC803 CXA1399Q-T4
IC803
(B-13)
A/D BIAS AMP
IC805 CXA1390AR-T3
IC805
(C-13)
AGC/IRIS CONTROL SIGNAL SEPARATION
804
(C-14)
DRIVE
XD1250N-T3
Q801 2SC4116
①
②
③
④
⑤
⑥

no mark : CAMERA REC mode

VC-12


17
18
19
20
(See Page 101)
(See Page 100)
(See Page 101)
VC-126 BOARD (2/4)
TO VC-126 BOARD (2/4)
TO VC-126 BOARD (2/4)
B8 B7 B6 B5 B4 B3 B2 B1 B0
C9 C8 C7 C6 C5 C4 C3 C2 C1
SW 5V
F6
IRIS OUT
A/D REF
S1 OFFSET
E6
E7
E8
4.8
VCC
D9 (MSB)
D8
D7
D6
D5
D4
D3
D2
D1
D0 (LSB)
0 C10
0.4 C9
0.6 C8
0.5 C7
0.6 C6
0.6 C5
0.8 C4
0.9 C3
1.2 C2
0.1 C1
UNDER
OVER
4.9
(C-3)
IC802
A/D CONVERTER
C813
0.1
25V
F
4.9
Q801
2SC4116
1.9
1.3
R803
1500
R835
1500
R831
560
Q801 (B-13)
BUFFER
VC-126 BOARD (1/4)

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this , the necessary note is printed in each block.)

• For printed wiring boards.

- ○— : indicated a lead wire mounted on the component side.
- —— : indicated a lead wire mounted on the conductor side.
- ■ : Parts mounted on the conductor side.
- ▨ : Pattern from the side which enables seeing.

(The other layers'patterns are not indicated.)

- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- ● : Through hole.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

• For schematic diagrams.

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair.
- —— : B+ Line.
- - - - : B– Line.
- ⇨ : IN/OUT direction of (+, –) B LINE.
- Circled numbers refer to waveforms.

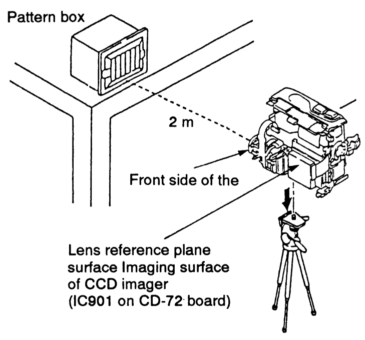
Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

• Measuring conditions voltage value and waveform.
(CAMERA, DIGITAL TITLE block)

- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points. Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

1. Connection


Pattern box
2 m
Front side of the
Lens reference plane
surface Imaging surface
of CCD imager
(IC901 on CD-72 board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

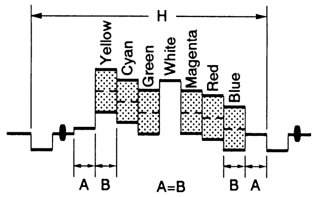

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A

Fig. a (Video output terminal output waveform)

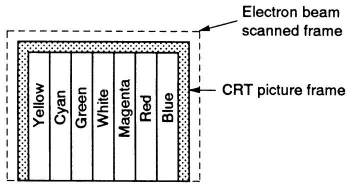

Electron beam
scanned frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

Fig. (Picture on monitor TV)

(VIDEO, SERVO/SYSTEM CONTROL, LCD CONTROL, AUDIO, VIEW FINDER block)

- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

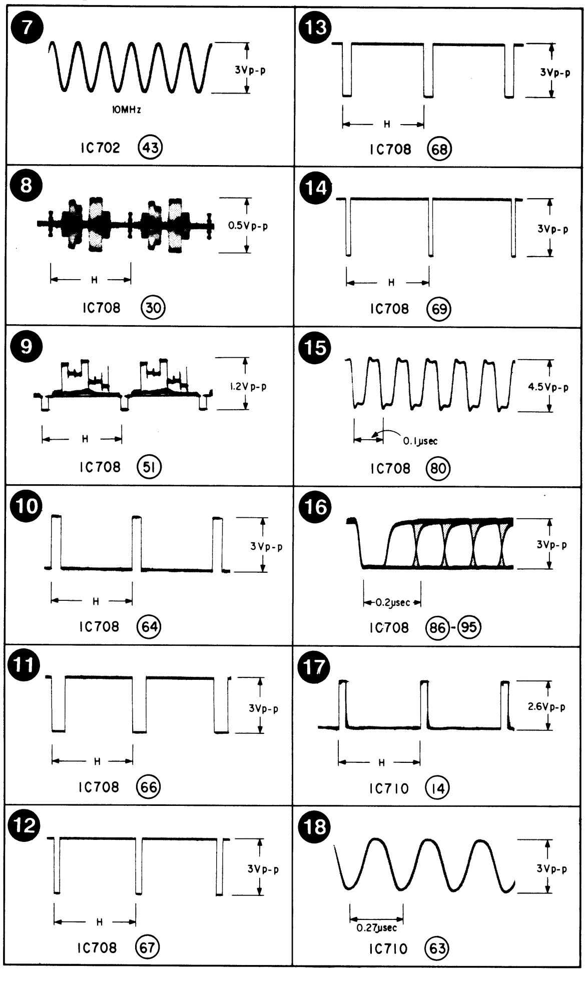
- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡≫	
PB				

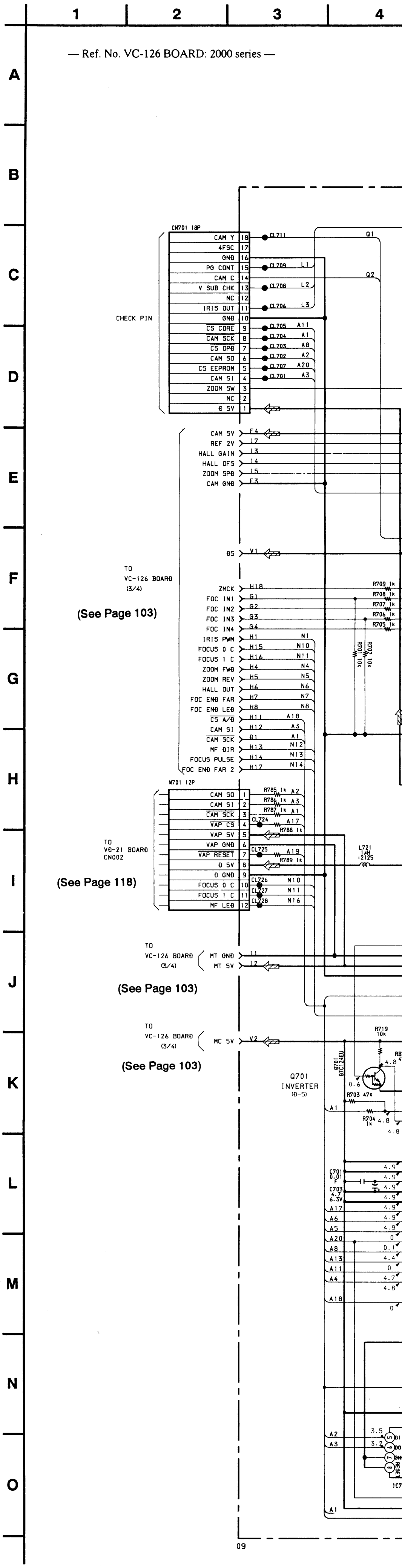
• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡>	➡>>	
PB				

VC-126 BOARD (2/4)



VC-126 (CAMERA) SCHEMATIC DIAGRAM • Refer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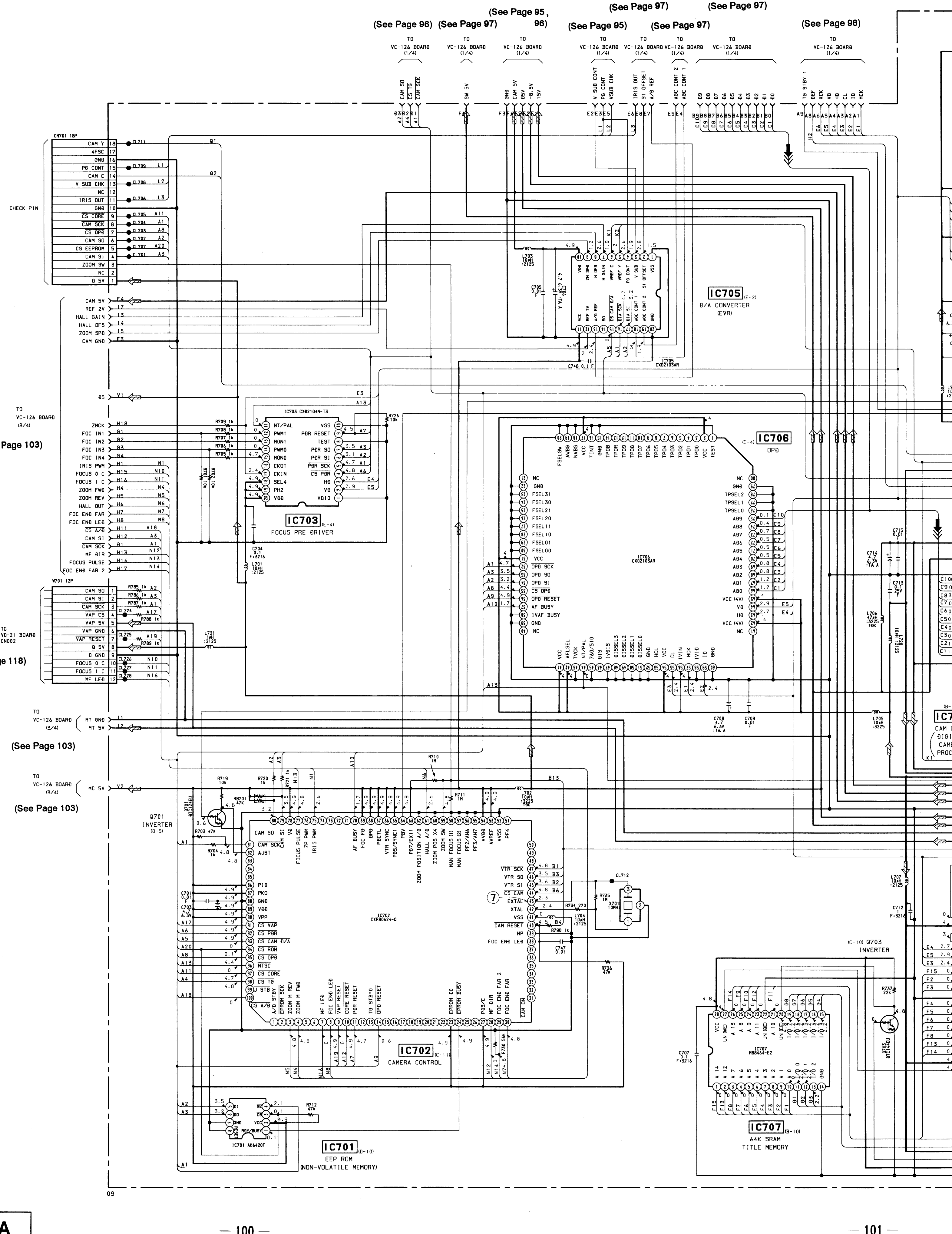
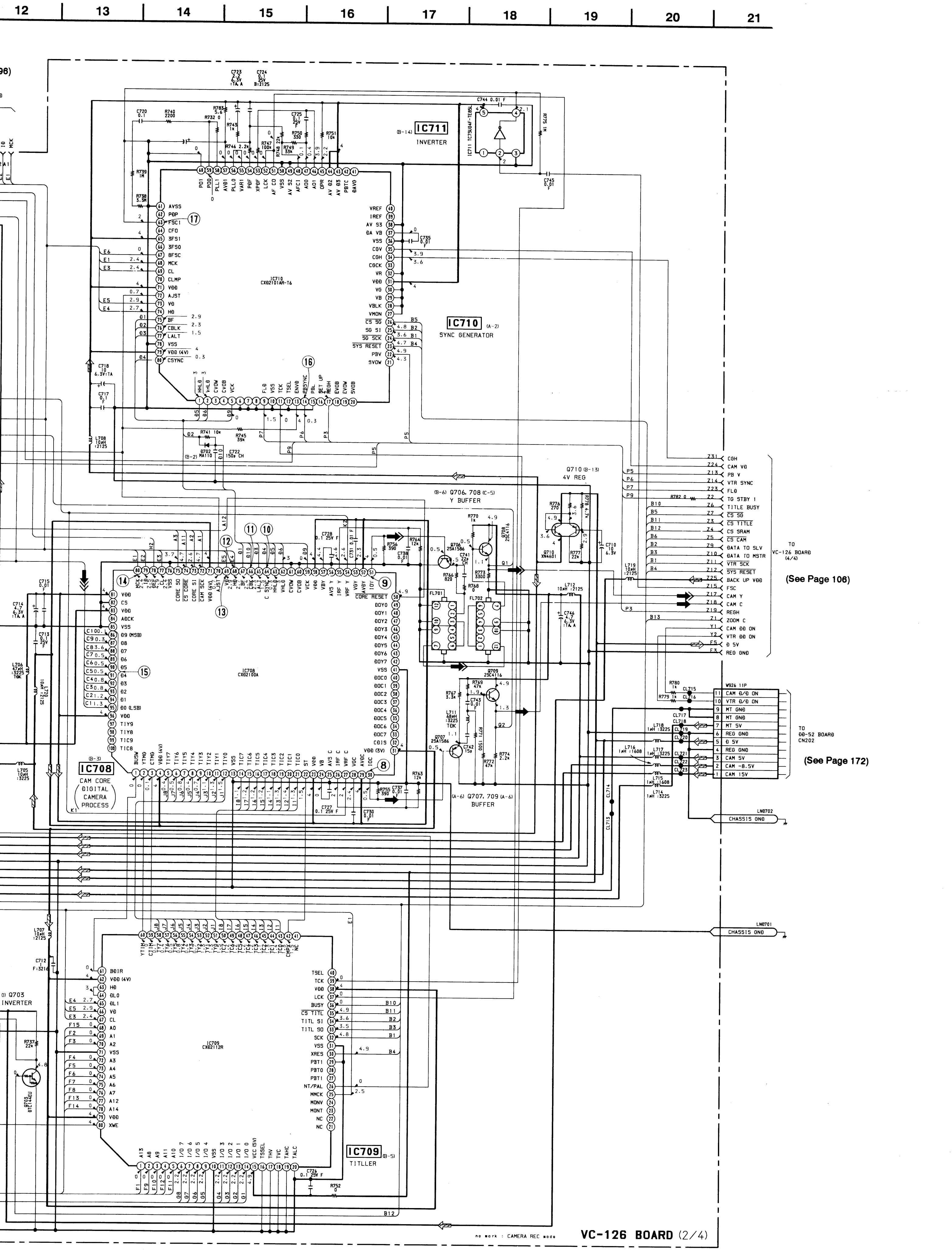
J
K
L
M
N
O
— Ref. No. VC-126 BOARD: 2000 series —
CN701 18P
CAM Y 18
4FSC 17
GND 16
PG CONT 15
CAM C 14
V SUB CHK 13
NC 12
IRIS OUT 11
GND 10
CS CORE 9
CAM SCK 8
CS DPG 7
CAM SO 6
CS EEPROM 5
CAM SI 4
ZOOM SW 3
NC 2
D 5V 1
CHECK PIN
CL711
CL709 L1
CL708 L2
CL706 L3
CL705 A11
CL704 A1
CL703 A8
CL702 A2
CL707 A20
CL701 A3
Q1
Q2
CAM 5V F4
REF 2V I7
HALL GAIN I3
HALL OFS I4
ZOOM SPD I5
CAM GND F3
D5 V1
TO VC-126 BOARD (3/4)
(See Page 103)
ZMCK H18
FOC IN1 G1
FOC IN2 G2
FOC IN3 G3
FOC IN4 G4
IRIS PWM H1 N1
FOCUS O C H15 N10
FOCUS I C H16 N11
ZOOM FWD H4 N4
ZOOM REV H5 N5
HALL OUT H6 N6
FOC END FAR H7 N7
FOC END LED H8 N8
CS A/D H11 A18
CAM SI H12 A3
CAM SCK D1 A1
MF DIR H13 N12
FOCUS PULSE H14 N13
FOC END FAR 2 H17 N14
R709 1k
R708 1k
R707 1k
R706 1k
R705 1k
R701 10k
R702 10k
W701 12P
CAM SO 1
CAM SI 2
CAM SCK 3
VAP CS 4
VAP 5V 5
VAP GND 6
VAP RESET 7
D 5V 8
D GND 9
FOCUS O C 10
FOCUS I C 11
MF LED 12
R785 1k A2
R786 1k A3
R787 1k A1
CL724 A17
R788 1k
CL725 A19
R789 1k
CL726 N10
CL727 N11
CL728 N16
TO VD-21 BOARD CN002
(See Page 118)
L721 1mH
TO VC-126 BOARD (3/4)
MT GND L1
MT 5V L2
(See Page 103)
TO VC-126 BOARD (3/4)
MC 5V V2
(See Page 103)
R719 10k
Q701 DTC124EU
Q701 INVERTER (D-S)
R703 47k
R704 1k
A1
C701 0.01
C703 4.7 6.3V
A17
A6
A5
A20
A8
A13
A11
A4
A18
A2
A3
A1
4.9
0.1
4.4
0
4.7
4.8
3.5
3.2
09

No. VC-126 BOARD: 2000 series —


(See Page 96)
(See Page 97)
(See Page 95, 96)
(See Page 95)
(See Page 97)
(See Page 97)
(See Page 96)
TO VC-126 BOARD (1/4)
CN701 18P
CHECK PIN
CAM Y
4FSC
GND
PG CONT
CAM C
V SUB CHK
NC
IRIS OUT
CS CORE
CAM SCK
CS OPD
CAM SO
CS EEPROM
CAM SI
ZOOM SW
D 5V
CAM 5V
REF 2V
HALL GAIN
HALL OFS
ZOOM SPD
CAM GND
TO VC-126 BOARD (3/4)
Page 103)
ZMCK
FOC IN1
FOC IN2
FOC IN3
FOC IN4
IRIS PWM
FOCUS 0 C
FOCUS 1 C
ZOOM FWD
ZOOM REV
HALL OUT
FOC ENG FAR
FOC ENG LED
CS A/D
MF DIR
FOCUS PULSE
FOC ENG FAR 2
W701 12P
VAP CS
VAP 5V
VAP GND
VAP RESET
MF LED
TO VD-21 BOARD CN002
ge 118)
MT GND
MT 5V
(See Page 103)
MC 5V
(See Page 103)
IC703 CXD2104N-T3
IC703 FOCUS PRE DRIVER
IC705 CXD2103AR
IC705 D/A CONVERTER (EVR)
IC706 CXD2103AR
IC706 OPD
IC702 CXP80624-Q
IC702 CAMERA CONTROL
IC701 AK6420F
IC701 EEP ROM (NON-VOLATILE MEMORY)
IC707 MB8464-E2
IC707 64K SRAM TITLE MEMORY
Q701 DTC124EU
Q701 INVERTER
Q703 INVERTER
X701 10MHz
CL712
7
IC7
CAM
DIGI
CAMI
PROC
09


12
13
14
15
16
17
18
19
20
21
IC711 INVERTER
IC711 TC7SU04F-TE85L
IC710 CXD2101AR-T6
IC710 SYNC GENERATOR
IC708 CXD2100A
IC708 CAM CORE DIGITAL CAMERA PROCESS
IC709 CXD2112R
IC709 TITLLER
Q710 4V REG
Q710 XN4601
Q706, 708 Y BUFFER
Q706 2SA1586
Q708 2SC4116
Q707, 709 BUFFER
Q707 2SA1586
Q709 2SC4116
Q702 MA110
Q703 INVERTER
Q703 DTC144EU
FL701
FL702
CGH
CAM VD
PB V
VTR SYNC
FLD
TG STBY 1
TITLE BUSY
CS SG
CS TITLE
CS SRAM
CS CAM
DATA TO SLV
DATA TO MSTR
VTR SCK
SYS RESET
BACK UP VDD
FSC
CAM Y
CAM C
REGH
ZOOM C
CAM DD ON
VTR DD ON
D 5V
REG GND
TO VC-126 BOARD (4/4)
(See Page 106)
W926 11P
CAM D/D ON
VTR D/D ON
MT GND
MT GND
MT 5V
REG GND
D 5V
REG GND
CAM 5V
CAM -8.5V
CAM 15V
TO DD-52 BOARD CN202
(See Page 172)
CHASSIS GND
CHASSIS GND

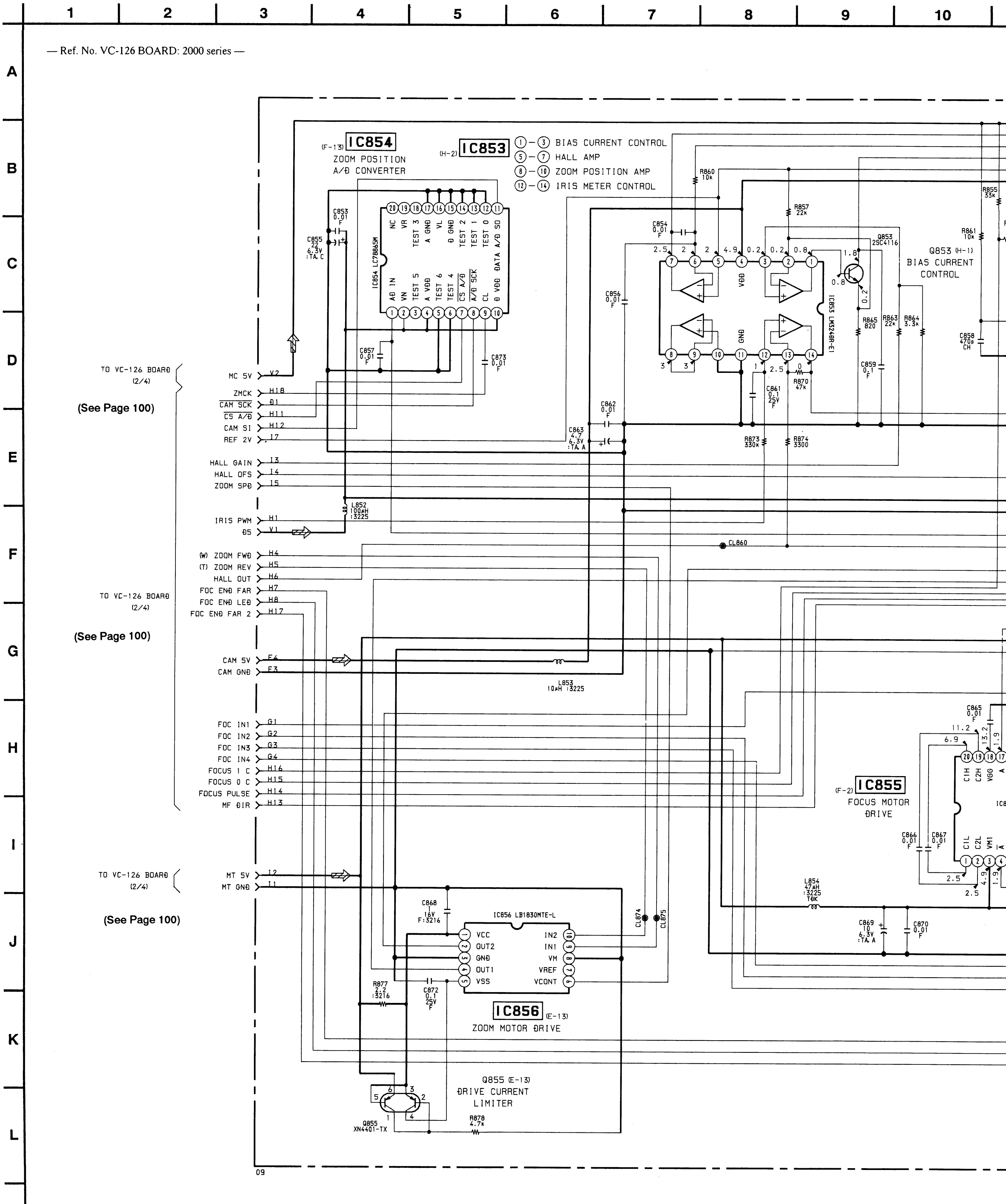
no mark : CAMERA REC mode

VC-126 BOARD (2/4)

VC-126 (LENS DRIVE) SCHEMATIC DIAGRAM

• Refer to page 92 for Printed Wiring Board.

— Ref. No. VC-126 BOARD: 2000 series —


1
2
3
4
5
6
7
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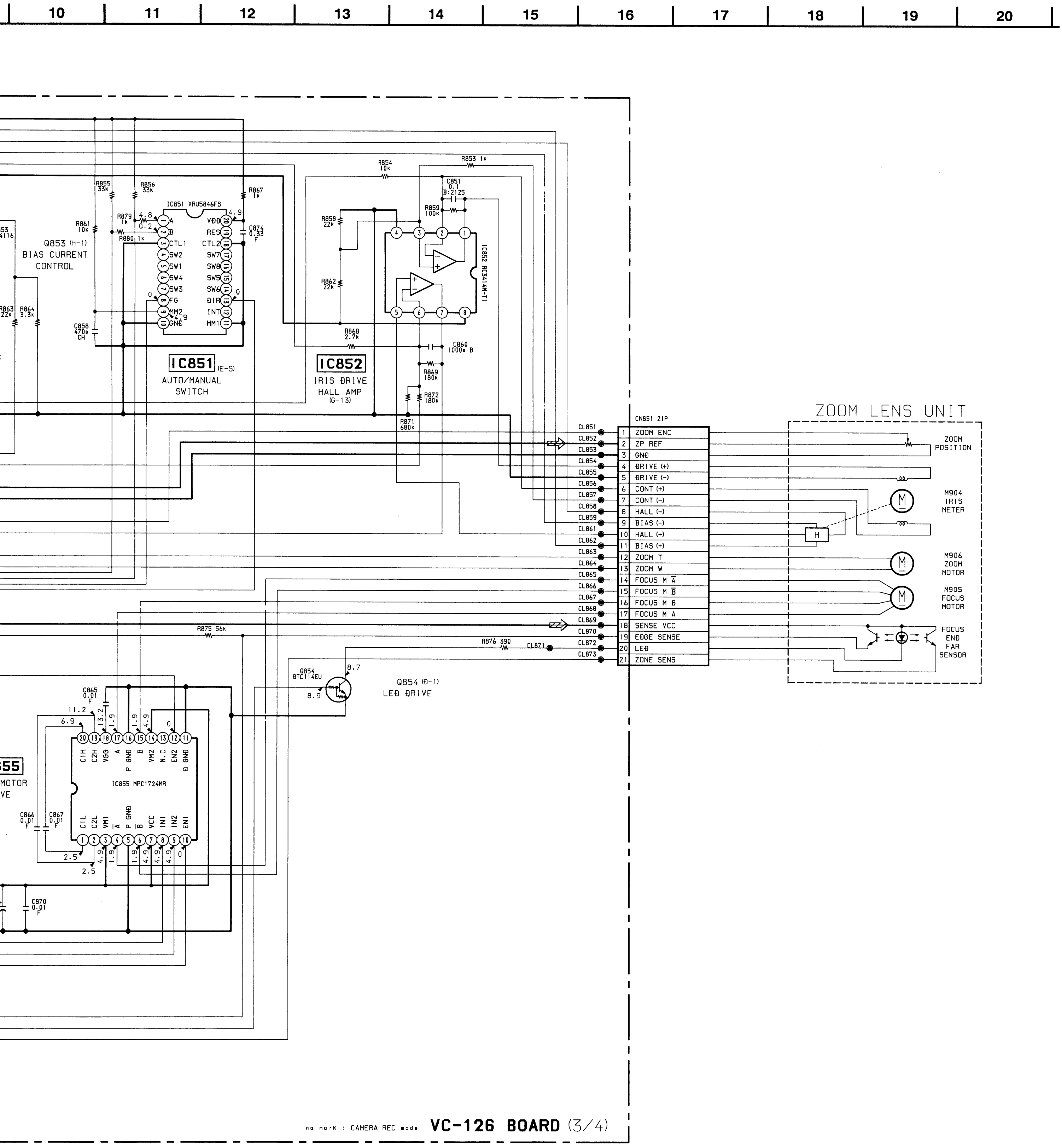
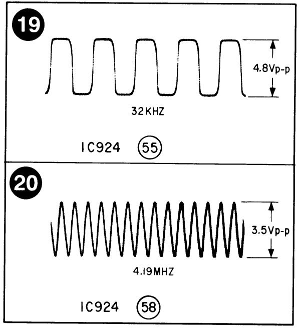
9
10
A
B
C
D
E
F
G
H
I
J
K
L
M
IC854 (F-13)
ZOOM POSITION A/D CONVERTER
IC854 LC78865M
NC VR TEST 3 A GND VL D GND TEST 2 TEST 1 TEST 0 A/D SO
AD IN VN TEST 5 A VDD TEST 6 TEST 4 CS A/D A/D SCK CL D VDD DATA A/D
IC853 (H-2)
①-③ BIAS CURRENT CONTROL
⑤-⑦ HALL AMP
⑧-⑩ ZOOM POSITION AMP
⑫-⑭ IRIS METER CONTROL
IC853 LM324BR-E1
VDD
GND
Q853 2SC4116
Q853 (H-1) BIAS CURRENT CONTROL
R860 10k
R857 22k
R855 33k
R861 10k
R865 820
R863 22k
R864 3.3k
R870 47k
R873 330k
R874 3300
C853 0.01 F
C855 22 6.3V :TA C
C854 0.01 F
C856 0.01 F
C857 0.01 F
C873 0.01 F
C858 470p CH
C859 0.1 F
C861 0.1 25V F
C862 0.01 F
C863 4.7 6.3V :TA A
2.5 2 2 4.9 0.2 0.2 0.8 1.8 0.8 0.2
3 3 1 2.5 0
TO VC-126 BOARD (2/4)
(See Page 100)
MC 5V V2
ZMCK H18
CAM SCK D1
CS A/D H11
CAM SI H12
REF 2V I7
HALL GAIN I3
HALL OFS I4
ZOOM SPD I5
IRIS PWM H1
D5 V1
L852 100µH :3225
CL860
TO VC-126 BOARD (2/4)
(See Page 100)
(W) ZOOM FWD H4
(T) ZOOM REV H5
HALL OUT H6
FOC END FAR H7
FOC END LED H8
FOC END FAR 2 H17
CAM 5V F4
CAM GND F3
L853 10µH :3225
FOC IN1 G1
FOC IN2 G2
FOC IN3 G3
FOC IN4 G4
FOCUS 1 C H16
FOCUS 0 C H15
FOCUS PULSE H14
MF DIR H13
IC855 (F-2)
FOCUS MOTOR DRIVE
C865 0.01 F
11.2 13.2 6.9 1.9
C1H C2H VGG
C1L C2L VM1
C866 0.01 F
C867 0.01 F
2.5 4.9 1.9 2.5
L854 47µH :3225 T6K
C869 10 6.3V :TA A
C870 0.01 F
TO VC-126 BOARD (2/4)
(See Page 100)
MT 5V I2
MT GND I1
C868 1 16V F:3216
IC856 LB1830MTE-L
VCC OUT2 GND OUT1 VSS
IN2 IN1 VM VREF VCONT
CL874
CL875
R877 2.2 :3216
C872 0.1 25V F
IC856 (E-13)
ZOOM MOTOR DRIVE
Q855 (E-13)
DRIVE CURRENT LIMITER
Q855 XN4401-TX
R878 4.7k
09

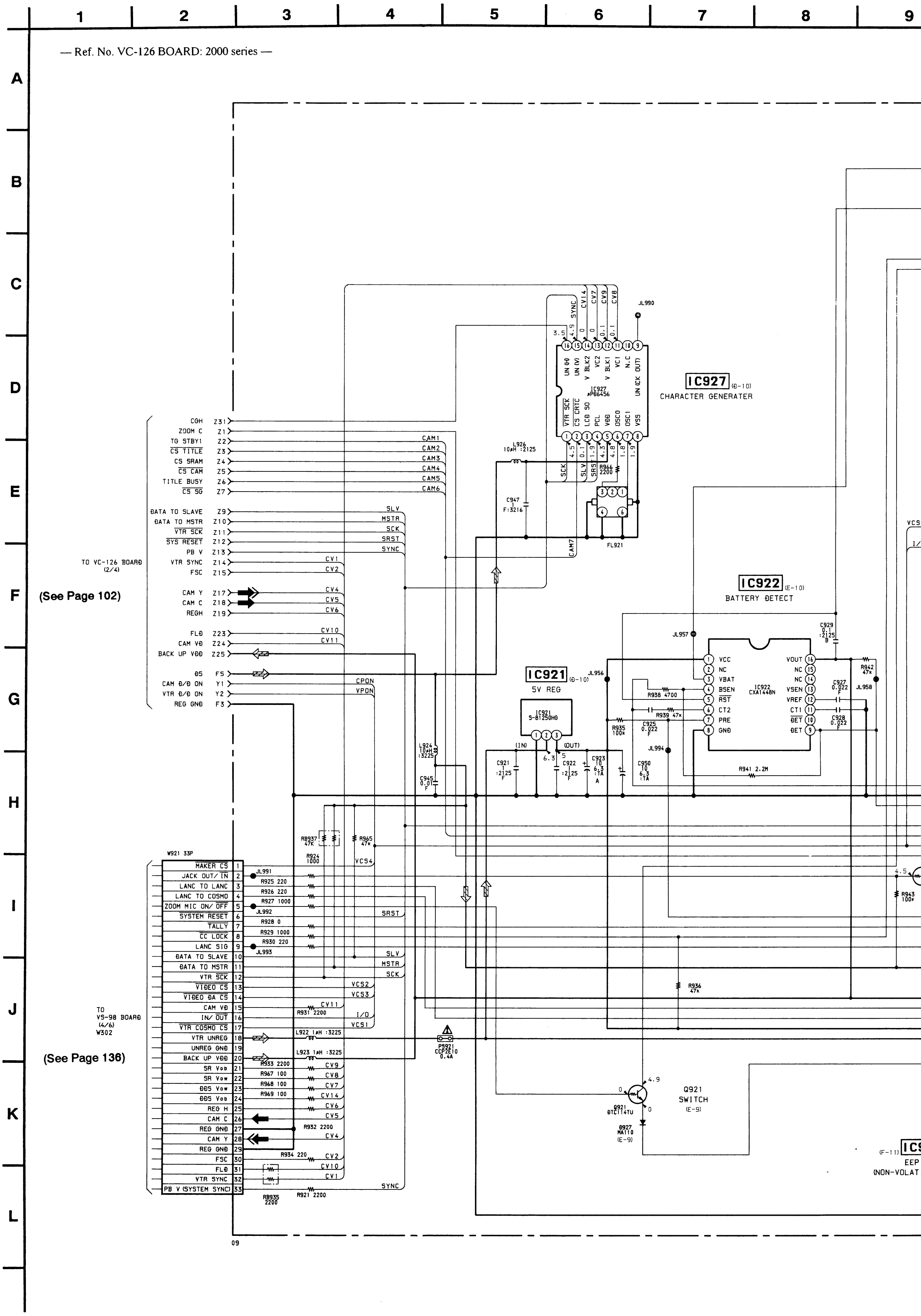

10
11
12
13
14
15
16
17
18
19
20
R855 33k
R856 33k
R867 1k
IC851 XRU5846FS
A
B
CTL1
SW2
SW1
SW4
SW3
FG
MM2
GND
VDD
RES
CTL2
SW7
SW8
SW5
SW6
DIR
INT
MM1
C874 0.33 F
R879 1k
R880 1k
R861 10k
Q853 (H-1)
BIAS CURRENT
CONTROL
R863 22k
R864 3.3k
C858 470p CH
IC851 (E-5)
AUTO/MANUAL
SWITCH
R854 10k
R853 1k
C851 0.1 B:2125
R859 100k
R858 22k
R862 22k
IC852 RC3414M-T1
R868 2.7k
C860 1000p B
R869 180k
R872 180k
R871 680k
IC852
IRIS DRIVE
HALL AMP
(G-13)
CN851 21P
CL851
CL852
CL853
CL854
CL855
CL856
CL857
CL858
CL859
CL861
CL862
CL863
CL864
CL865
CL866
CL867
CL868
CL869
CL870
CL872
CL873
1 ZOOM ENC
2 ZP REF
3 GND
4 DRIVE (+)
5 DRIVE (-)
6 CONT (+)
7 CONT (-)
8 HALL (-)
9 BIAS (-)
10 HALL (+)
11 BIAS (+)
12 ZOOM T
13 ZOOM W
14 FOCUS M Ā
15 FOCUS M B̄
16 FOCUS M B
17 FOCUS M A
18 SENSE VCC
19 EDGE SENSE
20 LED
21 ZONE SENS
ZOOM LENS UNIT
ZOOM POSITION
M904 IRIS METER
H
M906 ZOOM MOTOR
M905 FOCUS MOTOR
FOCUS END FAR SENSOR
R875 56k
R876 390
CL871
Q854 DTC114EU
8.7
8.9
Q854 (D-1)
LED DRIVE
C865 0.01 F
11.2
13.2
6.9
1.9
1.9
4.9
0
C1H
C2H
VGG
A
P GND
B
VM2
N.C
EN2
D GND
IC855 MPC1724MR
C1L
C2L
VM1
Ā
P GND
B̄
VCC
IN1
IN2
EN1
C866 0.01 F
C867 0.01 F
2.5
2.5
4.9
1.9
1.9
4.9
4.9
0
C870 0.01 F
855
MOTOR
VE
4.8
0.2
4.9
4.9
0
G
no mark : CAMERA REC mode
VC-126 BOARD (3/4)

VC-126 BOARD (4/4)



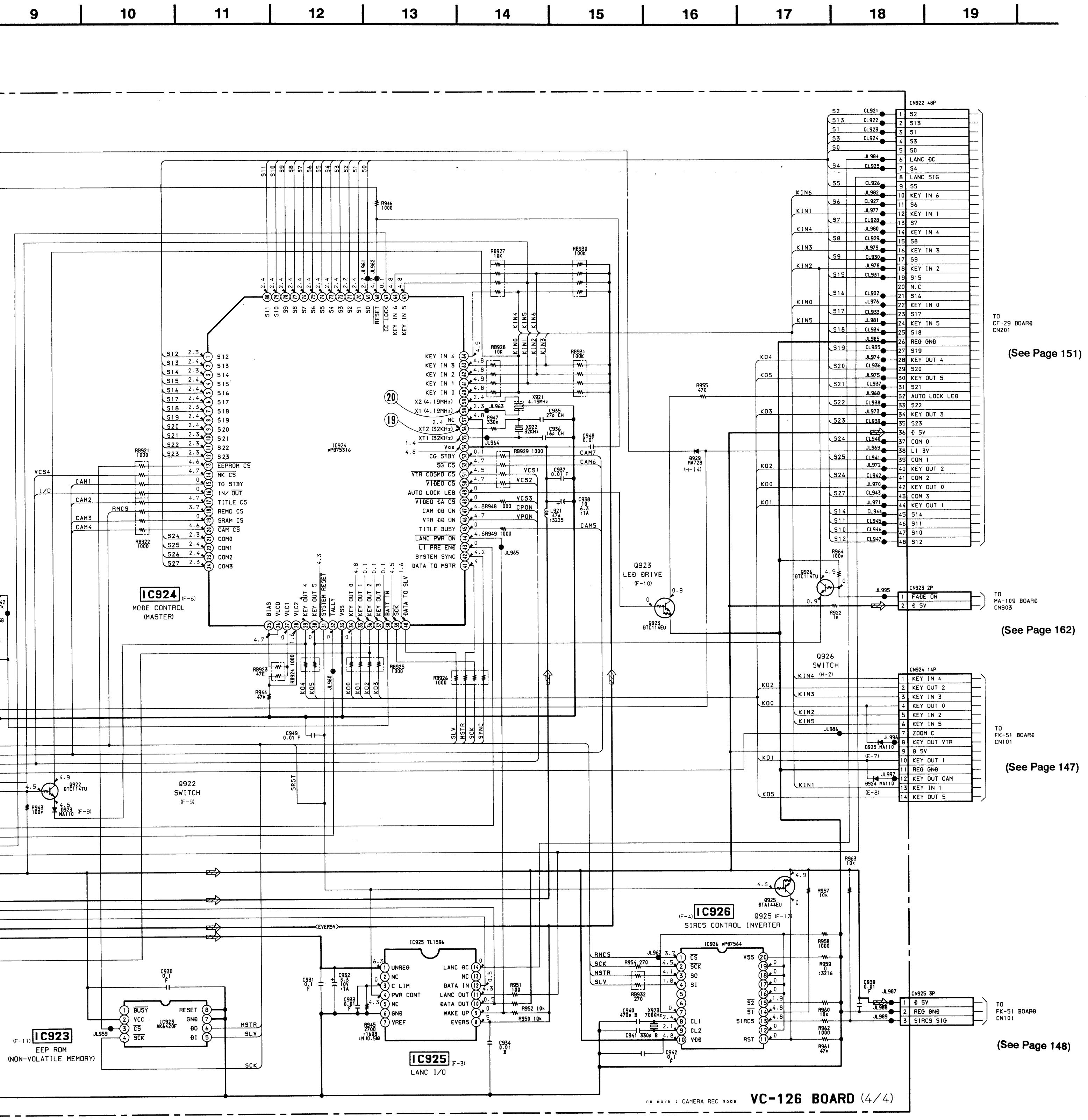
VC-126 (MODE CONTROL) SCHEMATIC DIAGRAM

• Refer to page 92 for Printed Wiring Board.


— Ref. No. VC-126 BOARD: 2000 series —
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
K
L
IC927 (D-10)
CHARACTER GENERATER
IC922 (E-10)
BATTERY DETECT
IC921 (G-10)
5V REG
Q921
SWITCH
(E-9)
TO VC-126 BOARD (2/4)
(See Page 102)
TO VS-98 BOARD (4/6) W302
(See Page 136)
W921 33P
FL921
JL990
JL957
JL956
JL994
JL991
JL992
JL993
JL958
PS921 CCP2E10 0.4A
EEP
(NON-VOLAT
09

• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛		
PB				

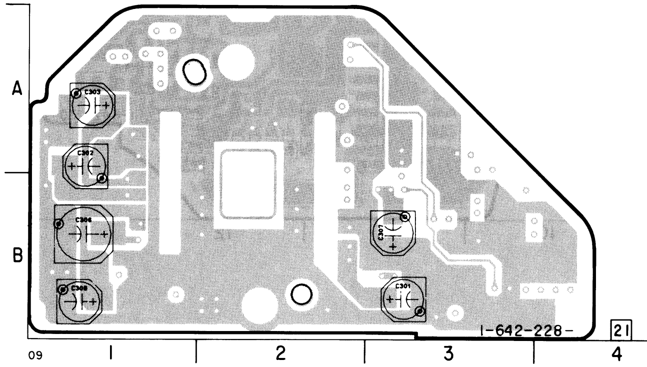


9
10
11
12
13
14
15
16
17
18
19
IC924 (F-6) MODE CONTROL (MASTER)
IC924 μPD75316
IC923 (F-11) EEP ROM (NON-VOLATILE MEMORY)
IC923 AK6420F
IC925 (F-3) LANC I/O
IC925 TL1596
IC926 (F-4) SIRCS CONTROL INVERTER
IC926 μPD7564
Q922 SWITCH (F-9)
Q923 LED DRIVE (F-10)
Q925 (F-12)
Q926 SWITCH
CN922 48P
TO CF-29 BOARD CN201
(See Page 151)
CN923 2P
FADE ON
0 5V
TO MA-109 BOARD CN903
(See Page 162)
CN924 14P
TO FK-51 BOARD CN101
(See Page 147)
CN925 3P
0 5V
REG GND
SIRCS SIG
TO FK-51 BOARD CN101
(See Page 148)
X921 4.19MHz
X922 32KHz
(EVERSV)
no mark : CAMERA REC mode
VC-126 BOARD (4/4)

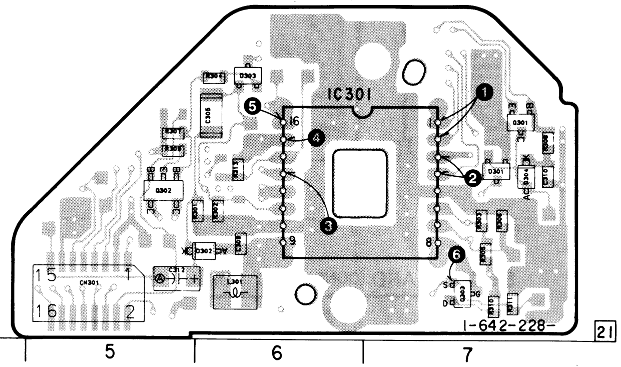
CD-72 (CCD IMAGER) PRINTED WIRING BOARD

— Ref. No. CD-72 BOARD: 1000 series —

CD-72 BOARD (COMPONENT SIDE)


A
B
C303
C302
C304
C308
C307
C301
1-642-228-
21
09
1
2
3
4

CD-72 BOARD (CONDUCTOR SIDE)


IC301
❶
❷
❸
❹
❺
❻
16
1
9
8
R304
D303
C305
R307
R308
Q302
D302
Q301
D301
D304
CN301
15
16
1
2
C312
L301
Q303
S
D
G
1-642-228-
21
5
6
7

- **For printed wiring boards.**
- CD-72 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ● : Through hole is omitted.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

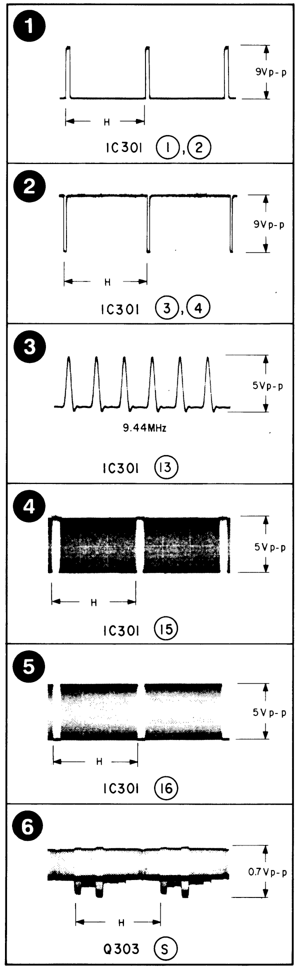
〈 DIODE 〉

D301	8-719-800-76	DIODE	1SS226
D302	8-719-404-46	DIODE	MA110
D303	8-719-820-05	DIODE	1SS181
D304	8-719-404-46	DIODE	MA110

〈 TRANSISTOR 〉

Q301	8-729-010-75	TRANSISTOR	MSC4116-B/C
Q302	8-729-903-10	TRANSISTOR	FMW1
Q303	8-729-232-86	TRANSISTOR	2SK1875

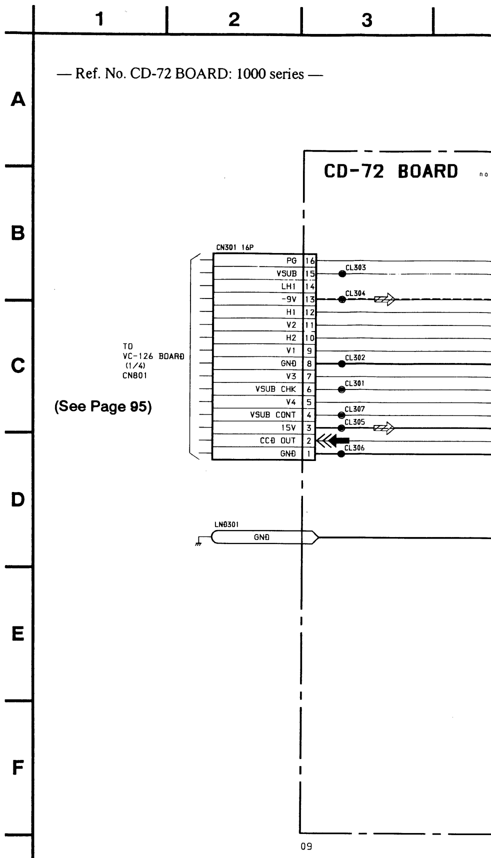
CD-72 BOARD



CD-72 (CCD IMAGER) SCHEMATIC DIAGRAM

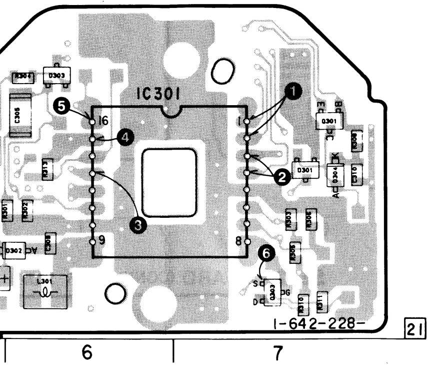
— Ref. No. CD-72 BOARD: 1000 series —

(See Page 95)

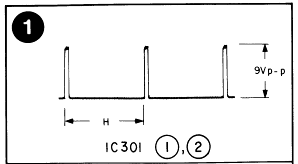

1
2
3
A
B
C
D
E
F
CD-72 BOARD
CN301 16P
PG 16
VSUB 15
LH1 14
-9V 13
H1 12
V2 11
H2 10
V1 9
GND 8
V3 7
VSUB CHK 6
V4 5
VSUB CONT 4
15V 3
CCD OUT 2
GND 1
CL303
CL304
CL302
CL301
CL307
CL305
CL306
TO
VC-126 BOARD
(1/4)
CN801
LND301
GND
09

Note on the CC
- Some of this
imager (IC901
The correction
of the camera
also written
(upper) of the
The correctio
supplied for
imager to whi
data label and
the camera m
for input meth
- The CCD im
CD-72 board
When replaci
from the old b
- Perform all a
imager has be
- Handle the C
may be broke
Also, prevent
and strong lig

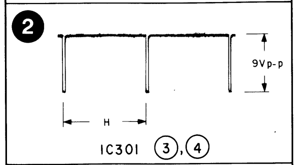
CONDUCTOR SIDE)


IC301
1
16
9
8
L301
1-642-228-
21
6
7

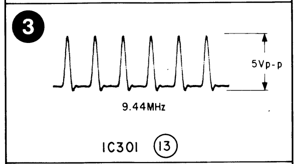
CD-72 BOARD



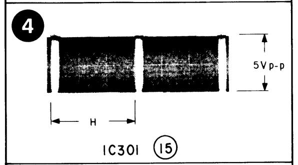
IC301 ①,②



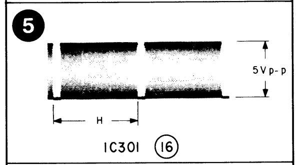
IC301 ③,④



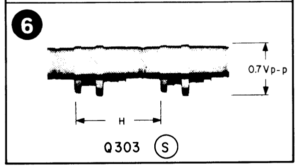
IC301 ⑬



IC301 ⑮



IC301 ⑯

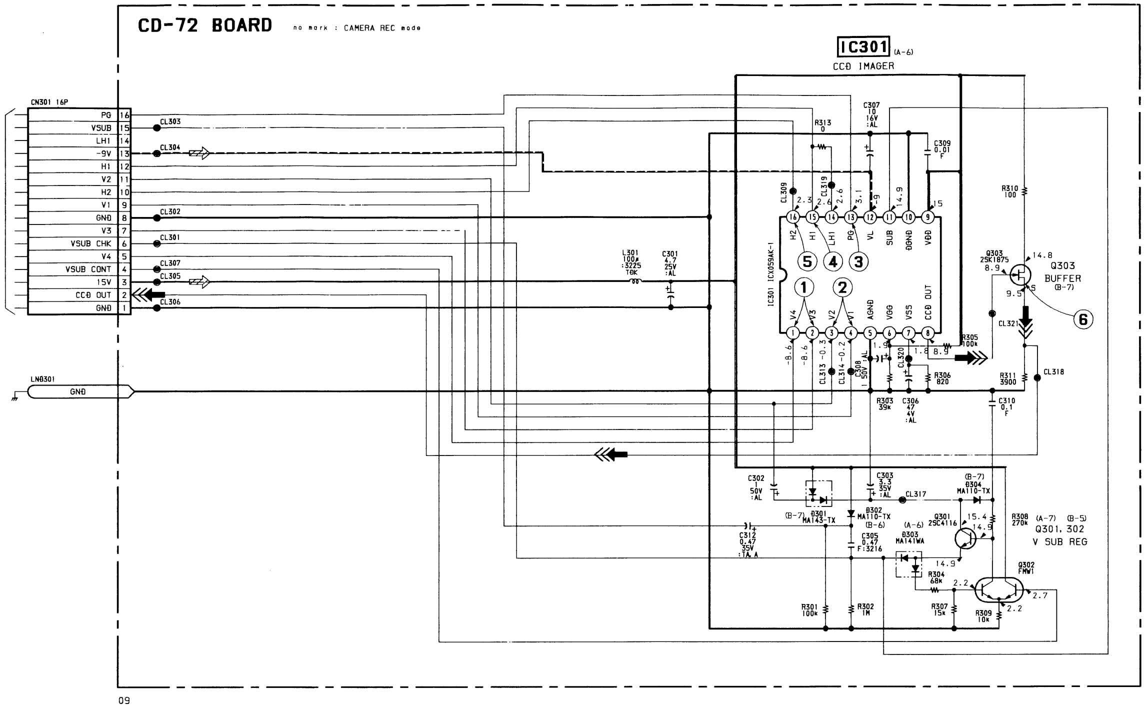


Q303 Ⓢ

CD-72 (CCD IMAGER) SCHEMATIC DIAGRAM

— Ref. No. CD-72 BOARD: 1000 series —

(See Page 95)


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
CD-72 BOARD
no mark : CAMERA REC mode
IC301 (A-6)
CCD IMAGER
CN301 16P
PG 16
VSUB 15
LH1 14
-9V 13
H1 12
V2 11
H2 10
V1 9
GND 8
V3 7
VSUB CHK 6
V4 5
VSUB CONT 4
15V 3
CCD OUT 2
GND 1
TO VC-126 BOARD (1/4) CN801
CL303
CL304
CL302
CL301
CL307
CL305
CL306
LN0301
GND
L301 100μ
C301 4.7 25V
R313 0
C307 10 16V
C309 0.01
R310 100
Q303 2SK1875
Q303 BUFFER (B-7)
14.8
8.9
9.5
CL321
CL318
R305 100k
R306 820
R311 3900
C310 0.1
R303 39k
C306 47 4V
C302 50V
C303 3.3 35V
CL317
Q304 MA110-TX
Q301 MA143-TX
Q302 MA110-TX
Q301 2SC4116
Q303 MA141WA
R308 270k
(A-7) (B-5) Q301, 302 V SUB REG
Q302 FMW1
C312 0.47 35V
C305 0.47
R304 68k
R301 100k
R302 1M
R307 15k
R309 10k
15.4
14.9
2.2
2.7
IC301 ICX059AK-1
H2
H1
LH1
PG
VL
SUB
OGND
VDD
V4
V3
V2
V1
AGND
VGG
VSS
CCD OUT
-8.6
1.9
8.9
09

Note on the CCD Imager replacement

- Some of this units require the correction data by the CCD imager (IC901 on CD-72 board), some do not.
  The correction data is input in F page and addresses 1D to 2C of the camera micro processor (IC709 on VC-126 board), and also written on the CCD data label put on the shield case (upper) of the DD-52 board.
  The correction data is not required for the CCD imager supplied for repair. Therefore, when replacing the CCD imager to which the CCD data label is put, remove the CCD data label and input 00 to F page and addresses 1D to 2C of the camera micro processor. Refer to the camera adjustment for input method.
- The CCD imager is not mounted for the already mounted CD-72 board supplied as the repair parts.
  When replacing the CD-72 board, remove the CCD imager from the old board and install on the new board.
- Perform all adjustments of the camera block when the CCD imager has been replaced.
- Handle the CCD imager with attention such as MOS IC as it may be broken by static electricity in the structure.
  Also, prevent the receiving light section from dust attached and strong light.

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			⇛	
PB				

〈 IC 〉

IC001	8-759-701-24	IC	NJM3414M
IC002	8-759-998-96	IC	LM324D
IC003	8-759-981-75	IC	RC3403AM
IC004	8-759-701-24	IC	NJM3414M
IC005	8-759-058-98	IC	SC370605DR
IC006	8-752-837-53	IC	CXP80624-296Q
IC007	8-759-500-11	IC	MM1036XF

〈 TRANSISTOR 〉

Q001	8-729-920-99	TRANSISTOR	DTA114EU
Q002	8-729-402-78	TRANSISTOR	XN6401
Q003	8-729-402-42	TRANSISTOR	UN5213

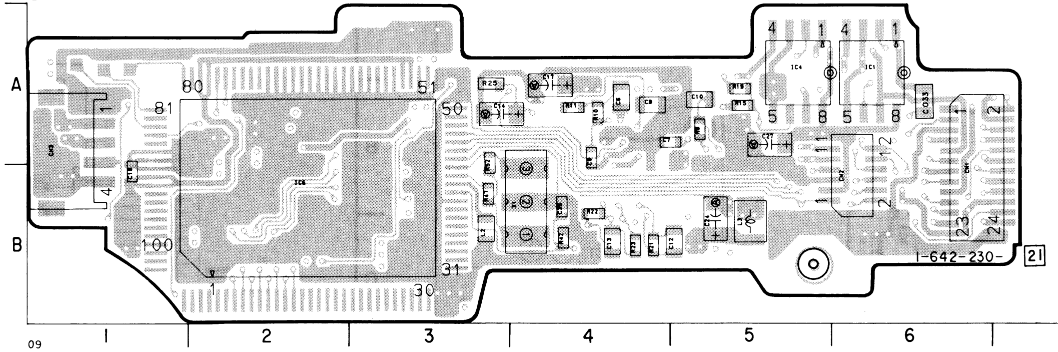
6Q

114EU
401
213

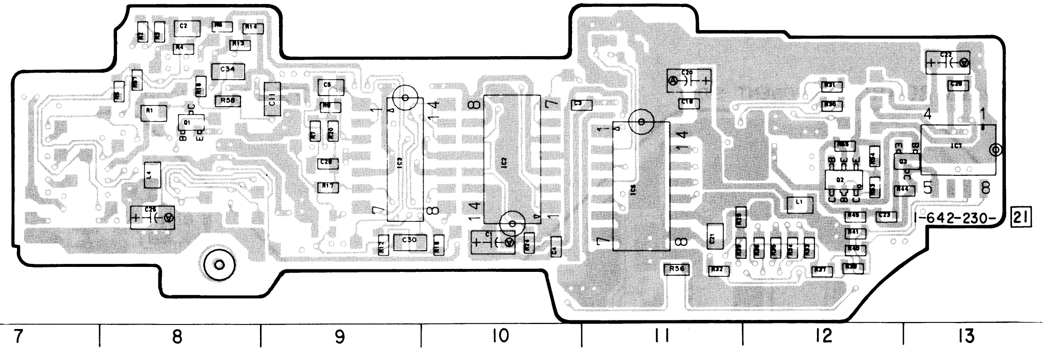
VD-21 (LENS CONTROL), SE-22 (LENS CONTROL) PRINTED WIRING BOARDS

— Ref. No. VD-21, SE-22 BOARDS: 2000 series —

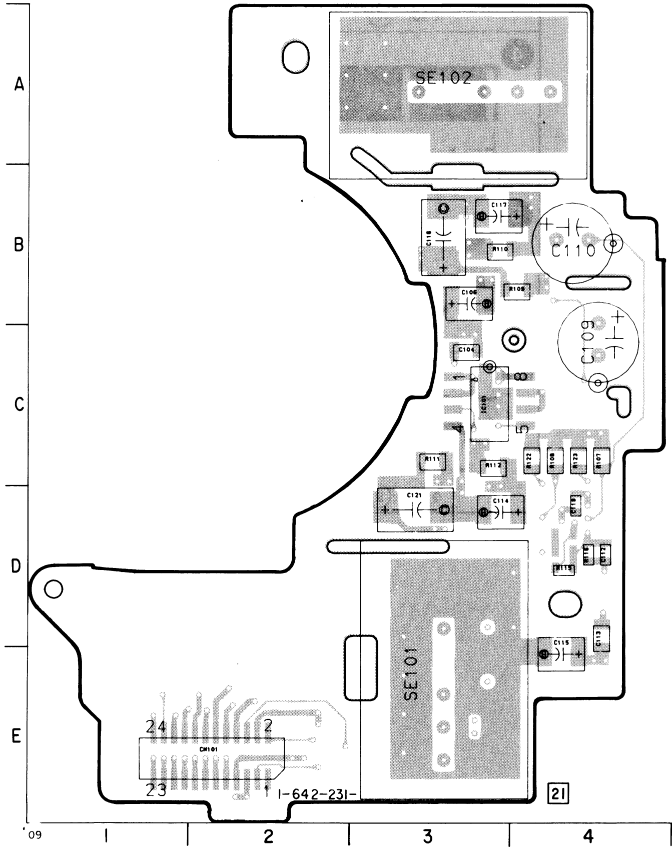
VD-21 BOARD (COMPONENT SIDE)


A
B
80
81
51
50
100
31
30
1
IC6
4
1
4
1
IC4
IC1
5
8
5
8
CN3
CN2
CN1
11
12
1
2
23
24
R25
C17
C14
C22
C24
R11
R15
R13
C033
1-642-230-
21
09
1
2
3
4
5
6

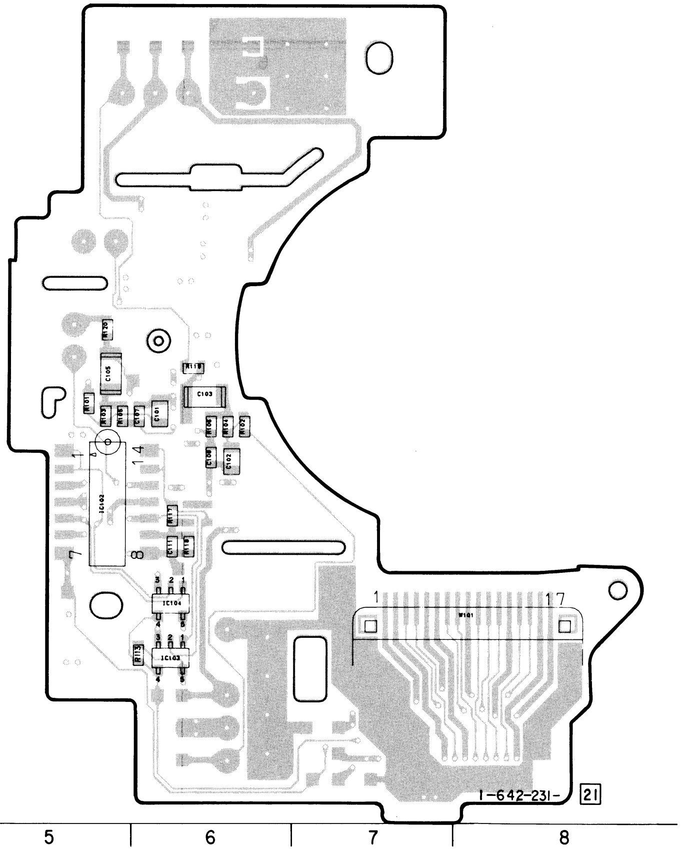
VD-21 BOARD (CONDUCTOR SIDE)


C2
C34
R58
IC3
IC2
IC5
IC7
1
14
7
8
4
5
1-642-230-
21
7
8
9
10
11
12
13

SE-22 BOARD (COMPONENT SIDE)


A
B
C
D
E
SE102
SE101
C110
C109
C117
C118
C108
R110
R109
C104
IC101
C121
C114
R111
R112
C115
CN101
24
2
23
1
1-642-231-
21
09
1
2
3
4

SE-22 BOARD (CONDUCTOR SIDE)


IC102
IC104
IC103
C103
C105
W101
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1-642-231-
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- **For printed wiring boards.**
- VD-21, SE-22 boards are the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ● : Through hole is omitted.

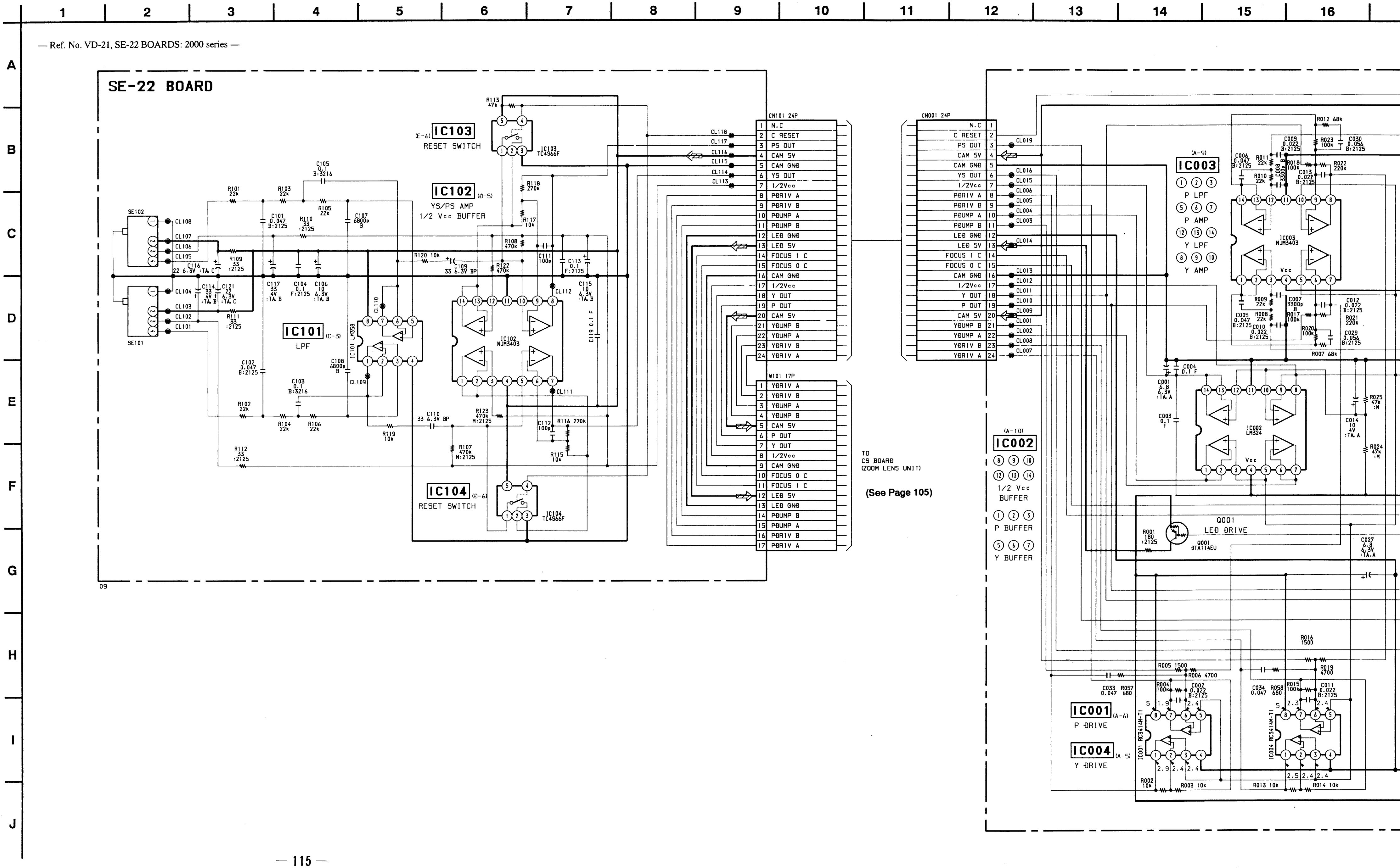
Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

〈 IC 〉

IC101	8-759-998-98	IC	LM358D
IC102	8-759-981-75	IC	RC3403AM
IC103	8-759-234-77	IC	TC4S66F
IC104	8-759-234-77	IC	TC4S66F

VD-21 (LENS CONTROL), SE-22 (LENS CONTROL) SCHEMATIC DIAGRAMS

— Ref. No. VD-21, SE-22 BOARDS: 2000 series —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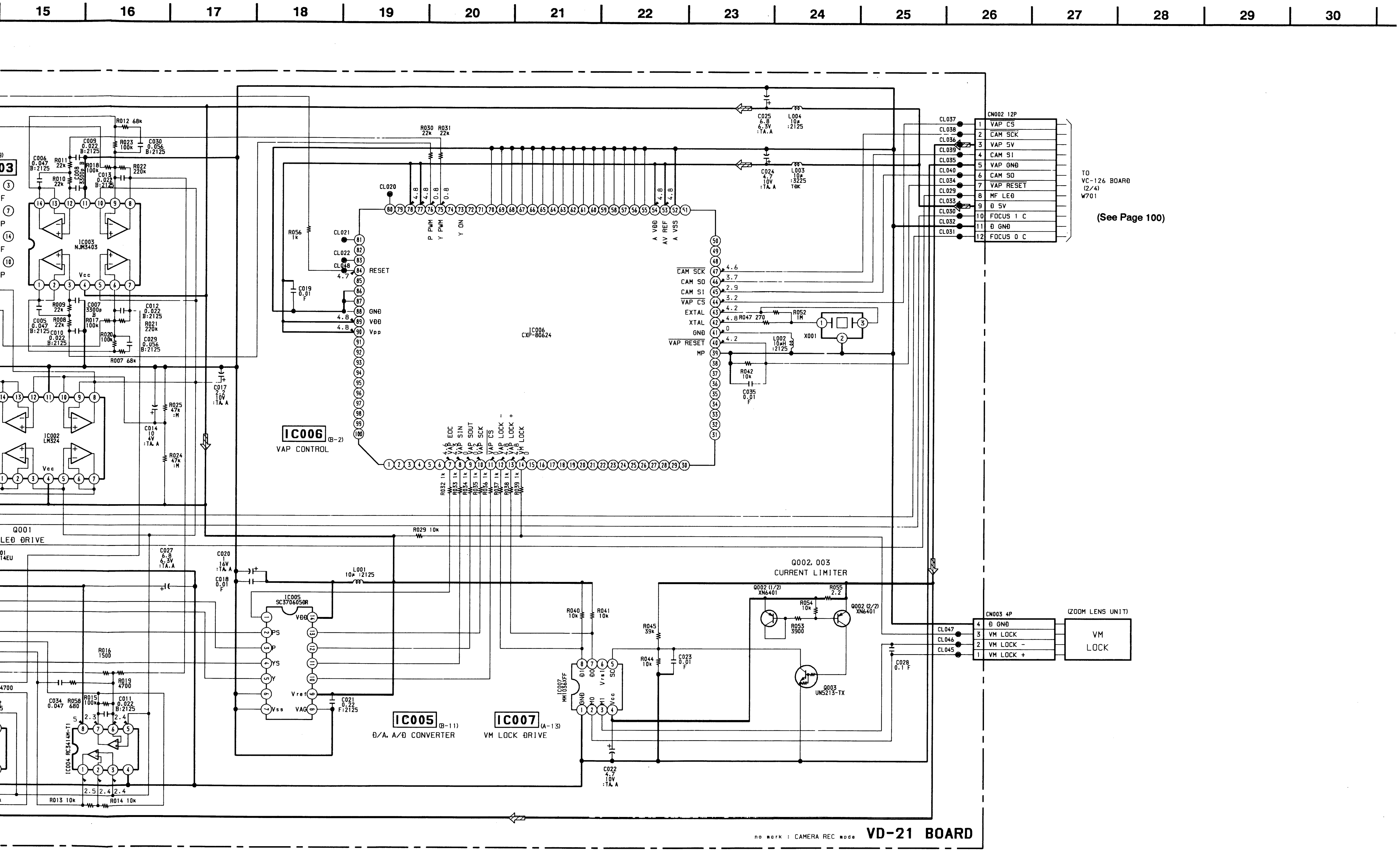
I
J
SE-22 BOARD
IC103
RESET SWITCH
IC103 TC4S66F
IC102
YS/PS AMP
1/2 Vcc BUFFER
IC102 NJM3403
IC101
LPF
IC101 LM358
IC104
RESET SWITCH
IC104 TC4S66F
SE102
SE101
CN101 24P
1 N.C
2 C RESET
3 PS OUT
4 CAM 5V
5 CAM GND
6 YS OUT
7 1/2Vcc
8 PDRIV A
9 PDRIV B
10 PDUMP A
11 PDUMP B
12 LED GND
13 LED 5V
14 FOCUS 1 C
15 FOCUS 0 C
16 CAM GND
17 1/2Vcc
18 Y OUT
19 P OUT
20 CAM 5V
21 YDUMP B
22 YDUMP A
23 YDRIV B
24 YDRIV A
W101 17P
1 YDRIV A
2 YDRIV B
3 YDUMP A
4 YDUMP B
5 CAM 5V
6 P OUT
7 Y OUT
8 1/2Vcc
9 CAM GND
10 FOCUS 0 C
11 FOCUS 1 C
12 LED 5V
13 LED GND
14 PDUMP B
15 PDUMP A
16 PDRIV B
17 PDRIV A
TO CS BOARD (ZOOM LENS UNIT)
(See Page 105)
CN001 24P
IC003
①②③ P LPF
⑤⑥⑦ P AMP
⑫⑬⑭ Y LPF
⑧⑨⑩ Y AMP
IC003 NJM3403
IC002
⑧⑨⑩ ⑫⑬⑭ 1/2 Vcc BUFFER
①②③ P BUFFER
⑤⑥⑦ Y BUFFER
IC002 LM324
Q001
LED DRIVE
Q001 DTA114EU
IC001
P DRIVE
IC001 RC3414M-T1
IC004
Y DRIVE
IC004 RC3414M-T1
09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IC003 NJM3403
IC002 LM324
IC006 CXP-80624
IC006 (B-2)
VAP CONTROL
IC005 SC370605OR
IC005 (B-11)
D/A, A/D CONVERTER
IC007 HM1036XFF
IC007 (A-13)
VM LOCK DRIVE
IC004 RC3414M-T1
Q001
LED DRIVE
Q002, 003
CURRENT LIMITER
Q002 (1/2) XN6401
Q002 (2/2) XN6401
Q003 UN5213-TX
X001
CN002 12P
1 VAP CS
2 CAM SCK
3 VAP 5V
4 CAM SI
5 VAP GND
6 CAM SO
7 VAP RESET
8 MF LED
9 D 5V
10 FOCUS 1 C
11 D GND
12 FOCUS 0 C
TO VC-126 BOARD (2/4) W701
(See Page 100)
CN003 4P
4 D GND
3 VM LOCK
2 VM LOCK -
1 VM LOCK +
(ZOOM LENS UNIT)
VM LOCK
RESET
GND
VDD
Vpp
CAM SCK
CAM SO
CAM SI
VAP CS
EXTAL
XTAL
VAP RESET
MP
A VDD
AV REF
A VSS
P PWM
Y PWM
Y ON
EOC
VAP SIN
VAP SOUT
VAP SCK
VAP CS
VM LOCK -
VM LOCK +
VM LOCK
R012 68k
R023 100k
C030 0.056 B:2125
C009 0.022 B:2125
C006 0.047 B:2125
R011 22k
R010 22k
C008 3300p B
R018 100k
C013 0.022 B:2125
R022 220k
R009 22k
R008 22k
C005 0.047 B:2125
C010 0.022 B:2125
C007 3300p B
R017 100k
R020 100k
C012 0.022 B:2125
R021 220k
C029 0.056 B:2125
R007 68k
C017 2.2 10V :TA A
R025 47k :M
R024 47k :M
C014 10 4V :TA A
R056 1k
C019 0.01 F
R030 22k
R031 22k
C025 6.8 6.3V :TA A
L004 10μ :2125
C024 4.7 10V :TA A
L003 10μ :3225 TDK
R047 270
R052 1M
L002 10μH :2125
R042 10k
C035 0.01 F
R032 1k
R033 1k
R034 1k
R035 1k
R036 1k
R037 1k
R038 1k
R039 1k
R029 10k
C027 6.8 6.3V :TA A
C020 1 16V :TA A
C018 0.01 F
L001 10μ :2125
C021 0.22 F:2125
R016 1500
R019 4700
C034 0.047
R058 680
R015 100k
C011 0.022 B:2125
R013 10k
R014 10k
R040 10k
R041 10k
R045 39k
R044 10k
C023 0.01 F
R054 10k
R055 2.2
R053 3900
C028 0.1 F
C022 4.7 10V :TA A
CL020
CL021
CL022
CL048
CL037
CL038
CL036
CL039
CL035
CL040
CL034
CL029
CL033
CL030
CL032
CL031
CL047
CL046
CL045

no mark : CAMERA REC mode **VD-21 BOARD**

(DIODE)

D071	8-719-404-46	DIODE	MA110
D072	8-719-800-76	DIODE	1SS226
D073	8-719-404-46	DIODE	MA110
D301	8-719-404-46	DIODE	MA110
D302	8-719-404-35	DIODE	MA141WK
D303	8-719-420-14	DIODE	MA8082-M
D304	8-719-404-46	DIODE	MA110
D305	8-719-404-46	DIODE	MA110
D306	8-719-420-14	DIODE	MA8082-M
D307	8-719-420-14	DIODE	MA8082-M
D308	8-719-420-14	DIODE	MA8082-M
D309	8-719-420-14	DIODE	MA8082-M
D351	8-719-404-46	DIODE	MA110
D401	8-719-421-03	DIODE	MA732
D402	8-719-404-35	DIODE	MA141WK
D403	8-719-820-05	DIODE	1SS181
D404	8-719-820-05	DIODE	1SS181
D405	8-719-404-46	DIODE	MA110
D406	8-719-404-46	DIODE	MA110
D407	8-719-404-46	DIODE	MA110
D408	8-719-404-46	DIODE	MA110
D409	8-719-404-46	DIODE	MA110
D551	8-719-404-46	DIODE	MA110
D552	8-719-404-35	DIODE	MA141WK
D553	8-719-404-46	DIODE	MA110

(IC)

IC001	8-759-080-20	IC	CXA1555AR
IC071	8-752-058-02	IC	CXA1509AR
IC072	8-759-009-10	IC	MC14069UBF
IC151	8-759-057-81	IC	MPC1727VM
IC152	8-759-823-90	IC	LB8110M
IC153	8-752-837-48	IC	CXP80624-411Q
IC154	8-759-057-77	IC	MCD004BN
IC155	8-759-243-19	IC	TC7SU04F
IC156	8-759-057-74	IC	MCD002AR
IC157	8-759-512-42	IC	CXA1481R
IC261	8-752-010-20	IC	CX20102
IC262	8-759-067-53	IC	CXD2120Q
IC301	8-759-038-83	IC	MC13400FU
IC303	8-759-061-70	IC	MB86168PFV
IC304	8-759-064-36	IC	MB88346BPFV
IC305	8-759-064-36	IC	MB88346BPFV
IC306	8-759-064-36	IC	MB88346BPFV
IC351	8-759-605-61	IC	CXA1203N
IC401	8-752-036-19	IC	CXA1207R
IC402	8-759-636-33	IC	CXA1452
IC403	8-752-053-21	IC	CXA1211M
IC501	8-752-036-20	IC	CXA1208R
IC503	8-752-053-21	IC	CXA1211M
IC551	8-752-333-24	IC	CXL1506M
IC552	8-752-333-24	IC	CXL1506M

(TRANSISTOR)

Q001	8-729-140-63	TRANSISTOR	2SA1611-M5M6
Q002	8-729-140-63	TRANSISTOR	2SA1611-M5M6
Q003	8-729-216-22	TRANSISTOR	2SA1162-G
Q005	8-729-013-04	TRANSISTOR	2SC4851
Q006	8-729-013-04	TRANSISTOR	2SC4851
Q007	8-729-013-04	TRANSISTOR	2SC4851
Q008	8-729-013-04	TRANSISTOR	2SC4851
Q010	8-729-403-35	TRANSISTOR	UN5113
Q011	8-729-403-35	TRANSISTOR	UN5113
Q012	8-729-403-35	TRANSISTOR	UN5113
Q013	8-729-403-35	TRANSISTOR	UN5113
Q014	8-729-904-07	TRANSISTOR	FMG2
Q015	8-729-904-07	TRANSISTOR	FMG2
Q016	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q017	8-729-905-23	TRANSISTOR	2SA1576-R
Q018	8-729-403-35	TRANSISTOR	UN5113
Q071	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q072	8-729-140-63	TRANSISTOR	2SA1611-M5M6
Q073	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q074	8-729-402-42	TRANSISTOR	UN5213
Q075	8-729-402-42	TRANSISTOR	UN5213
Q076	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q078	8-729-402-42	TRANSISTOR	UN5213
Q079	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q080	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q081	8-729-140-63	TRANSISTOR	2SA1611-M5M6
Q082	8-729-402-42	TRANSISTOR	UN5213
Q084	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q085	8-729-420-12	TRANSISTOR	XN4213
Q086	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q087	8-729-403-35	TRANSISTOR	UN5113
Q088	8-729-140-63	TRANSISTOR	2SA1611-M5M6
Q089	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q090	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q091	8-729-403-35	TRANSISTOR	UN5113
Q092	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q151	8-729-907-00	TRANSISTOR	DTC114EU
Q261	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q262	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q263	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q264	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q265	8-729-905-23	TRANSISTOR	2SA1576-R
Q302	8-729-905-23	TRANSISTOR	2SA1576-R
Q303	8-729-403-35	TRANSISTOR	UN5113
Q304	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q306	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q307	8-729-905-23	TRANSISTOR	2SA1576-R
Q309	8-729-402-42	TRANSISTOR	UN5213
Q310	8-729-402-42	TRANSISTOR	UN5213
Q313	8-729-402-78	TRANSISTOR	XN6401
Q314	8-729-106-60	TRANSISTOR	2SB1115A-YQ
Q315	8-729-905-23	TRANSISTOR	2SA1576-R
Q316	8-729-402-42	TRANSISTOR	UN5213
Q351	8-729-403-35	TRANSISTOR	UN5113
Q352	8-729-402-42	TRANSISTOR	UN5213
Q353	8-729-403-35	TRANSISTOR	UN5113
Q355	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q356	8-729-402-42	TRANSISTOR	UN5213
Q357	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q358	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q401	8-729-420-07	TRANSISTOR	XN6213
Q402	8-729-907-39	TRANSISTOR	IMD2
Q404	8-729-402-42	TRANSISTOR	UN5213
Q405	8-729-824-05	TRANSISTOR	3SK248
Q406	8-729-402-42	TRANSISTOR	UN5213
Q407	8-729-402-42	TRANSISTOR	UN5213
Q409	8-729-403-35	TRANSISTOR	UN5113
Q410	8-729-402-78	TRANSISTOR	XN6401
Q411	8-729-403-06	TRANSISTOR	XN1113
Q412	8-729-930-13	TRANSISTOR	UMH2
Q413	8-729-402-42	TRANSISTOR	UN5213
Q414	8-729-423-52	TRANSISTOR	2SC3931-C
Q415	8-729-824-02	TRANSISTOR	2SA1838
Q416	8-729-402-42	TRANSISTOR	UN5213
Q417	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q418	8-729-905-23	TRANSISTOR	2SA1576-R
Q419	8-729-905-23	TRANSISTOR	2SA1576-R
Q420	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q421	8-729-402-42	TRANSISTOR	UN5213
Q422	8-729-823-16	TRANSISTOR	2SC4555-5. 6. 7
Q423	8-729-823-16	TRANSISTOR	2SC4555-5. 6. 7
Q424	8-729-402-42	TRANSISTOR	UN5213
Q425	8-729-421-90	TRANSISTOR	XN4113
Q426	8-729-117-73	TRANSISTOR	2SC4178-F14
Q429	8-729-402-42	TRANSISTOR	UN5213
Q430	8-729-423-52	TRANSISTOR	2SC3931-C
Q431	8-729-423-52	TRANSISTOR	2SC3931-C
Q432	8-729-402-81	TRANSISTOR	XN4501
Q433	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q434	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q435	8-729-403-35	TRANSISTOR	UN5113
Q437	8-729-905-23	TRANSISTOR	2SA1576-R
Q438	8-729-423-52	TRANSISTOR	2SC3931-C
Q439	8-729-920-99	TRANSISTOR	DTA114EU
Q440	8-729-905-23	TRANSISTOR	2SA1576-R
Q441	8-729-905-23	TRANSISTOR	2SA1576-R
Q442	8-729-402-42	TRANSISTOR	UN5213
Q443	8-729-402-42	TRANSISTOR	UN5213
Q444	8-729-402-42	TRANSISTOR	UN5213
Q501	8-729-117-73	TRANSISTOR	2SC4178-F14
Q502	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q504	8-729-905-23	TRANSISTOR	2SA1576-R
Q505	8-729-905-23	TRANSISTOR	2SA1576-R
Q506	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q507	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q508	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q509	8-729-403-35	TRANSISTOR	UN5113
Q510	8-729-423-52	TRANSISTOR	2SC3931-C
Q511	8-729-402-42	TRANSISTOR	UN5213
Q513	8-729-402-42	TRANSISTOR	UN5213
Q514	8-729-402-42	TRANSISTOR	UN5213
Q515	8-729-402-42	TRANSISTOR	UN5213
Q516	8-729-402-42	TRANSISTOR	UN5213
Q551	8-729-807-87	TRANSISTOR	2SB1295-UL6
Q552	8-729-402-42	TRANSISTOR	UN5213
Q553	8-729-807-87	TRANSISTOR	2SB1295-UL6
Q554	8-729-402-42	TRANSISTOR	UN5213
Q555	8-729-905-23	TRANSISTOR	2SA1576-R
Q556	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q557	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q558	8-729-402-42	TRANSISTOR	UN5213
Q559	8-729-905-23	TRANSISTOR	2SA1576-R
Q560	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q599	8-729-403-35	TRANSISTOR	UN5113

VS-98 (VIDEO HEAD AMPLIFIER, VIDEO,

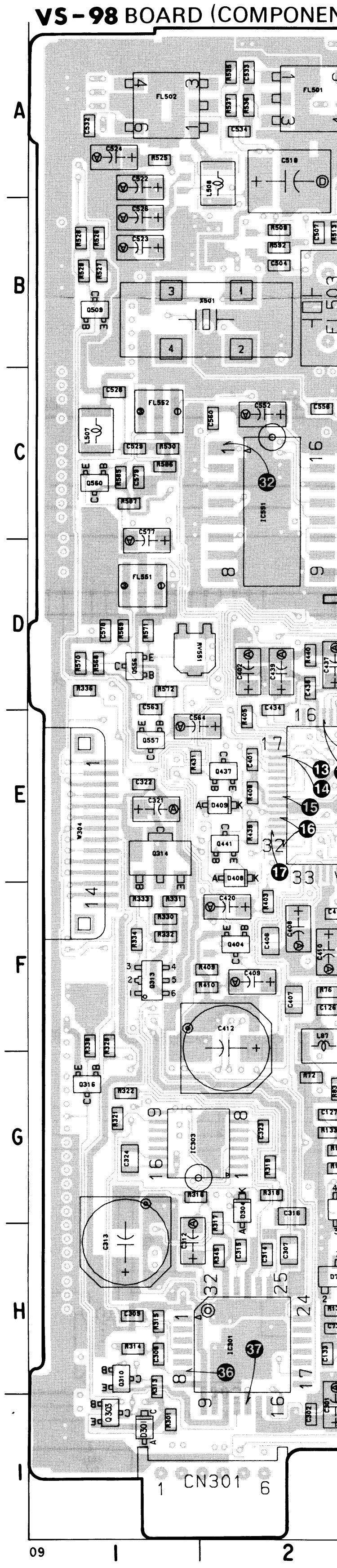
— Ref. No. VS-98 BOARD: 3000 series —

- **For printed wiring boards.**
- VS-98 board is the printed wiring board which has
  structure but inner two layers' patterns are omitted.
- ● : Through hole is omitted.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side s the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen parts face are indicated.

VS-98 BOARD (COMPONEN



VS-98 (VIDEO HEAD AMPLIFIER, VIDEO, SERVO SYSTEM CONTROL, INDEX MARKER) PRINTED WIRING BOARD

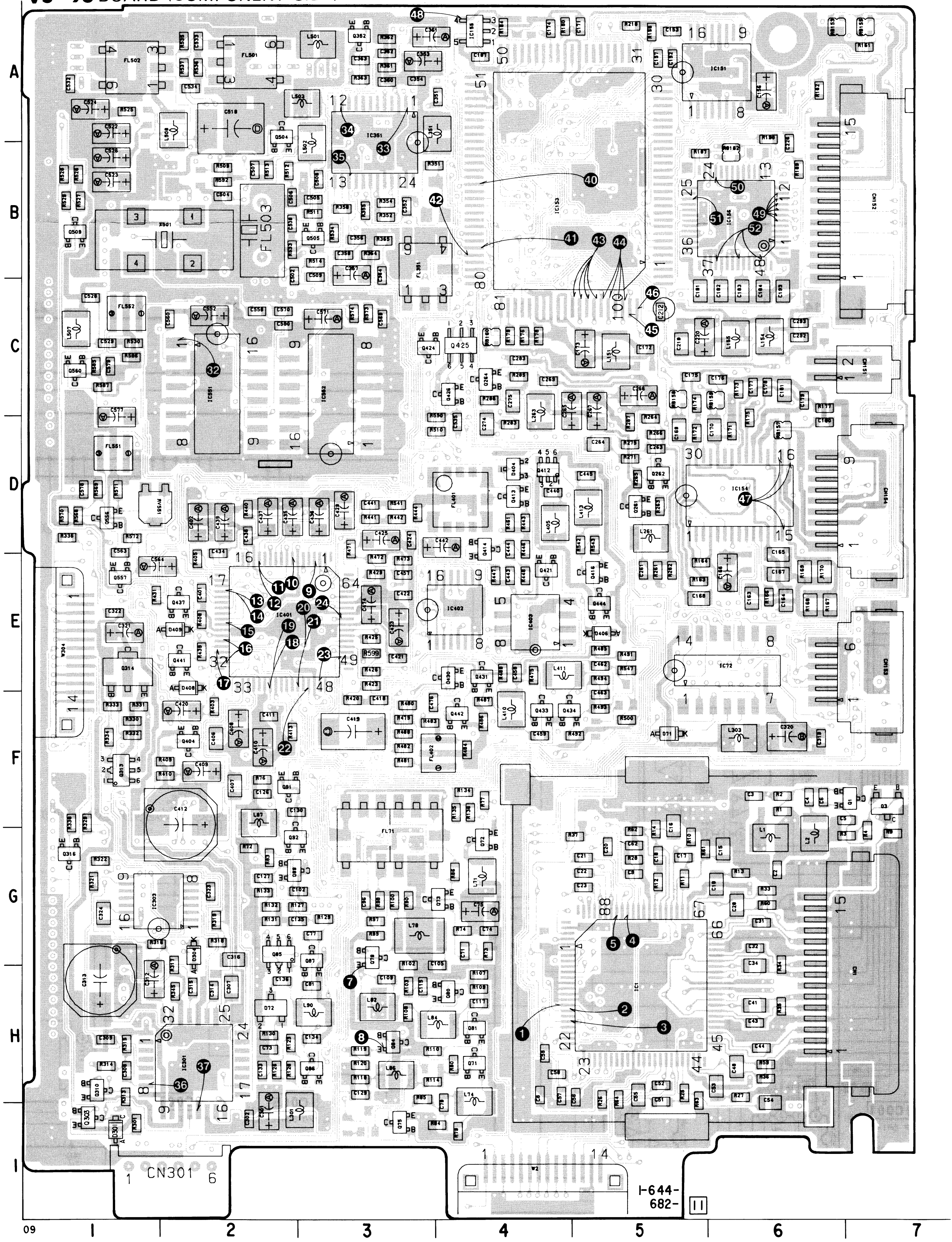
— Ref. No. VS-98 BOARD: 3000 series —

- **For printed wiring boards.**
- VS-98 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ● : Through hole is omitted.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

VS-98 BOARD (COMPONENT SIDE)



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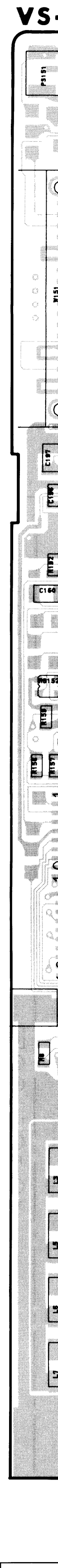
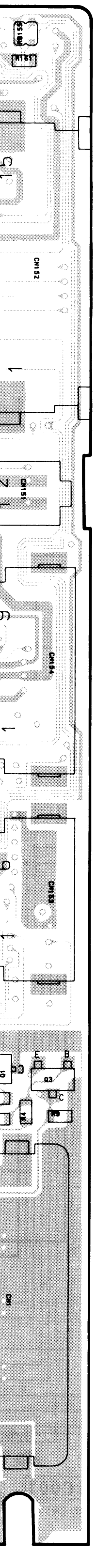
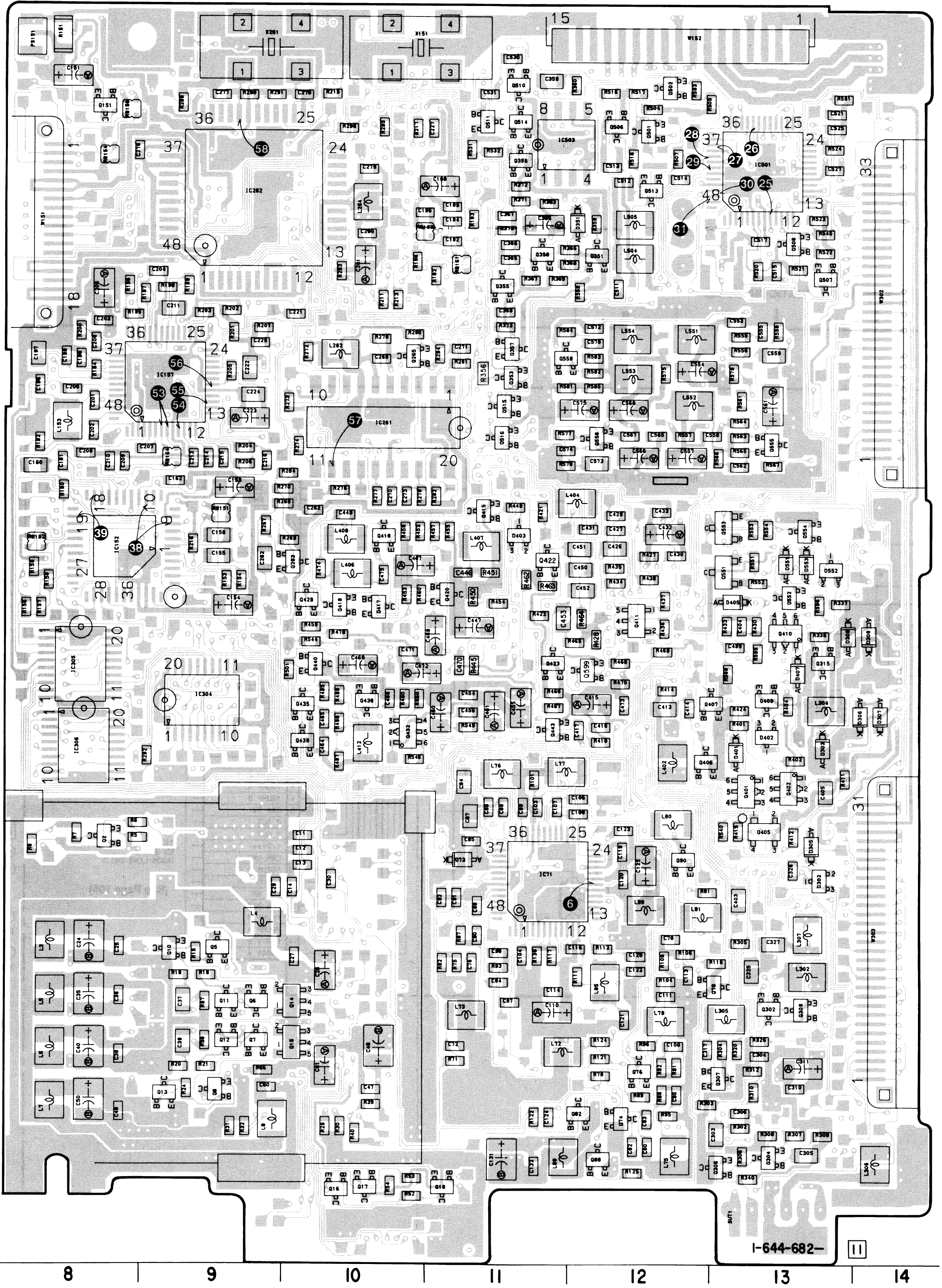
FL502
FL501
FL503
FL551
FL552
FL351
FL401
FL402
FL71
X501
IC351
IC153
IC151
IC154
IC155
IC591
IC592
IC401
IC402
IC403
IC72
IC1
IC301
IC303
CN152
CN153
CN154
CN155
CN1
W304
CN301
1-644-682-11



VS-98 BOARD (CONDUCTOR SIDE)




IC262
IC157
IC152
IC261
IC305
IC304
IC306
IC503
IC501
IC71
X261
X151
W152
W151
W302
W303
1-644-682-11

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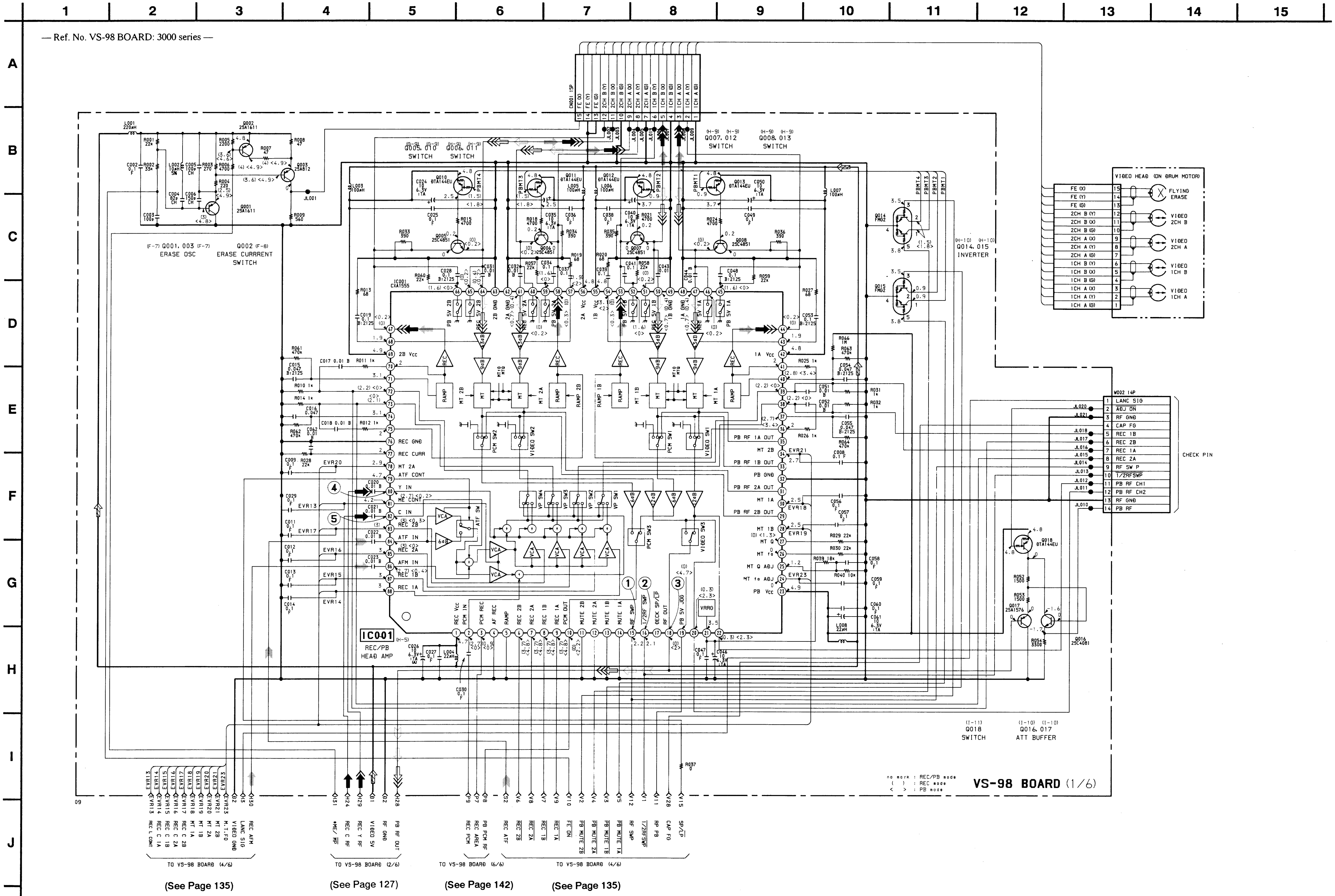
VS-98 (VIDEO HEAD AMPLIFIER) SCHEMATIC DIAGRAM

• Refer to page 119 for Printed Wiring Board.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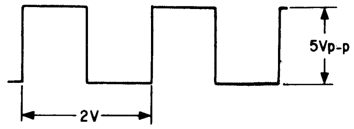
— Ref. No. VS-98 BOARD: 3000 series —
CN001 15P
FE (X)
FE (Y)
FE (G)
2CH B (Y)
2CH B (X)
2CH B (G)
2CH A (X)
2CH A (Y)
2CH A (G)
1CH B (Y)
1CH B (X)
1CH B (G)
1CH A (X)
1CH A (Y)
1CH A (G)
(F-7) Q001, 003 (F-7)
ERASE OSC
Q002 (F-8)
ERASE CURRRENT SWITCH
Q001 2SA1611
Q002 2SA1611
Q003 2SA812
JL001
(G-9) (G-9) Q005, 010 SWITCH
(H-9) (H-9) Q006, 011 SWITCH
(H-9) (H-9) Q007, 012 SWITCH
(H-9) (H-9) Q008, 013 SWITCH
Q010 DTA144EU
Q011 DTA144EU
Q012 DTA144EU
Q013 DTA144EU
Q005 2SC4851
Q006 2SC4851
Q007 2SC4851
Q008 2SC4851
PBMT4
PBMT3
PBMT2
PBMT1
IC001 CXA1555
Q014 FMG2
Q015 FMG2
(H-10) (H-10) Q014, 015 INVERTER
VIDEO HEAD (ON DRUM MOTOR)
FLYING ERASE
VIDEO 2CH B
VIDEO 2CH A
VIDEO 1CH B
VIDEO 1CH A
W002 14P
1 LANC SIG
2 ADJ ON
3 RF GND
4 CAP FG
5 REC 1B
6 REC 2B
7 REC 1A
8 REC 2A
9 RF SW P
10 1/2RFSWP
11 PB RF CH1
12 PB RF CH2
13 RF GND
14 PB RF
JL020
JL021
JL018
JL017
JL016
JL015
JL014
JL013
JL012
JL011
JL010
CHECK PIN
IC001 REC/PB HEAD AMP
2B Vcc
REC GND
REC CURR
MT 2A
ATF CONT
Y IN
ME CONT
C IN
REC 2B
ATF IN
REC 2A
AFM IN
REC 1B
REC 1A
1A Vcc
PB RF 1A OUT
MT 2B
PB RF 1B OUT
PB GND
PB RF 2A OUT
MT 1A
PB RF 2B OUT
MT 1B
MT Q
MT fo
MT Q ADJ
MT fo ADJ
PB Vcc
REC Vcc
PCM IN
PCM REC
AF REC
RAMP
REC 2B
REC 2A
REC 1B
REC 1A
PCM OUT
MUTE 2B
MUTE 2A
MUTE 1B
MUTE 1A
RF SWP
1/2RF SWP
DECK SP/LP
RF OUT
PB 5V JOG
VRRG
PCM SW2
VIDEO SW2
PCM SW1
VIDEO SW1
PCM SW3
VIDEO SW3
VP SW4
VP SW3
VP SW2
VP SW1
VCA
ATF SW
RAMP
MT
RAMP 2B
RAMP 1B
MT 2B
MT 1B
MT 1A
REC
EVR13
EVR14
EVR15
EVR16
EVR17
EVR18
EVR19
EVR20
EVR21
EVR23
(I-11) Q018 SWITCH
(I-10) (I-10) Q016, 017 ATT BUFFER
Q018 DTA144EU
Q017 2SA1576
Q016 2SC4081
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
VS-98 BOARD (1/6)
EVR13 REC L CONT
EVR14 REC C 1A
EVR15 REC C 1B
EVR16 REC C 2A
EVR17 REC C 2B
EVR18 MT 1A
EVR19 MT 1B
EVR20 MT 2A
EVR21 MT 2B
EVR23 M.T.FO
B2 VIDEO GND
H3 LANC SIG
H30 REC AFM
TO VS-98 BOARD (4/6)
H31 *ME/MP
H24 REC C RF
H29 REC Y RF
B1 VIDEO 5V
B2 RF GND
H28 PB RF OUT
TO VS-98 BOARD (2/6)
P9 REC PCM
P7 REC AREA
P8 PB PCM RF
TO VS-98 BOARD (6/6)
S2 REC ATF
V6 REC 2B
V8 REC 2A
V7 REC 1B
V9 REC 1A
V10 FE ON
V2 PB MUTE 2B
V4 PB MUTE 2A
V3 PB MUTE 1B
V5 PB MUTE 1A
V12 RF SWP
V1 1/2RFSWP
V11 RP PB
V28 CAP FG
V15 SP/LP
TO VS-98 BOARD (4/6)
R037 0
(See Page 135)
(See Page 127)
(See Page 142)
(See Page 135)

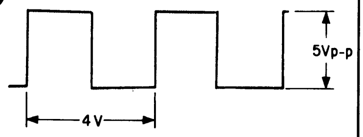
VS-98 BOARD (1/6)

❶



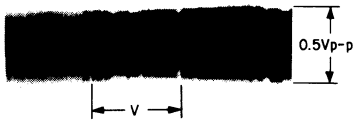
IC001 ⑮ REC/PB

❷



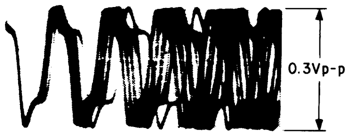
IC001 ⑯ REC/PB

❸



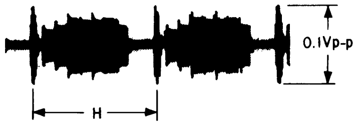
IC001 ⑱ PB

❹



IC001 (80) REC

❺



IC001 (82) REC

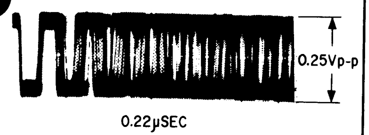
- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡>	➡>>	➡
PB			⇨>>	⇨

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)			
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal	➤		▷

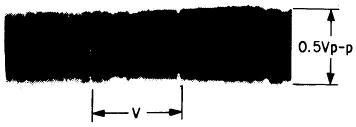
VS-98 BOARD (2/6)

6



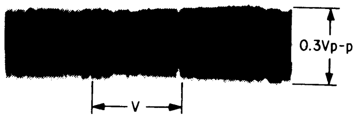
IC071 (18) REC

7



Q079 (E) PB

8



Q084 (E) PB

- **SIGNAL PATH**

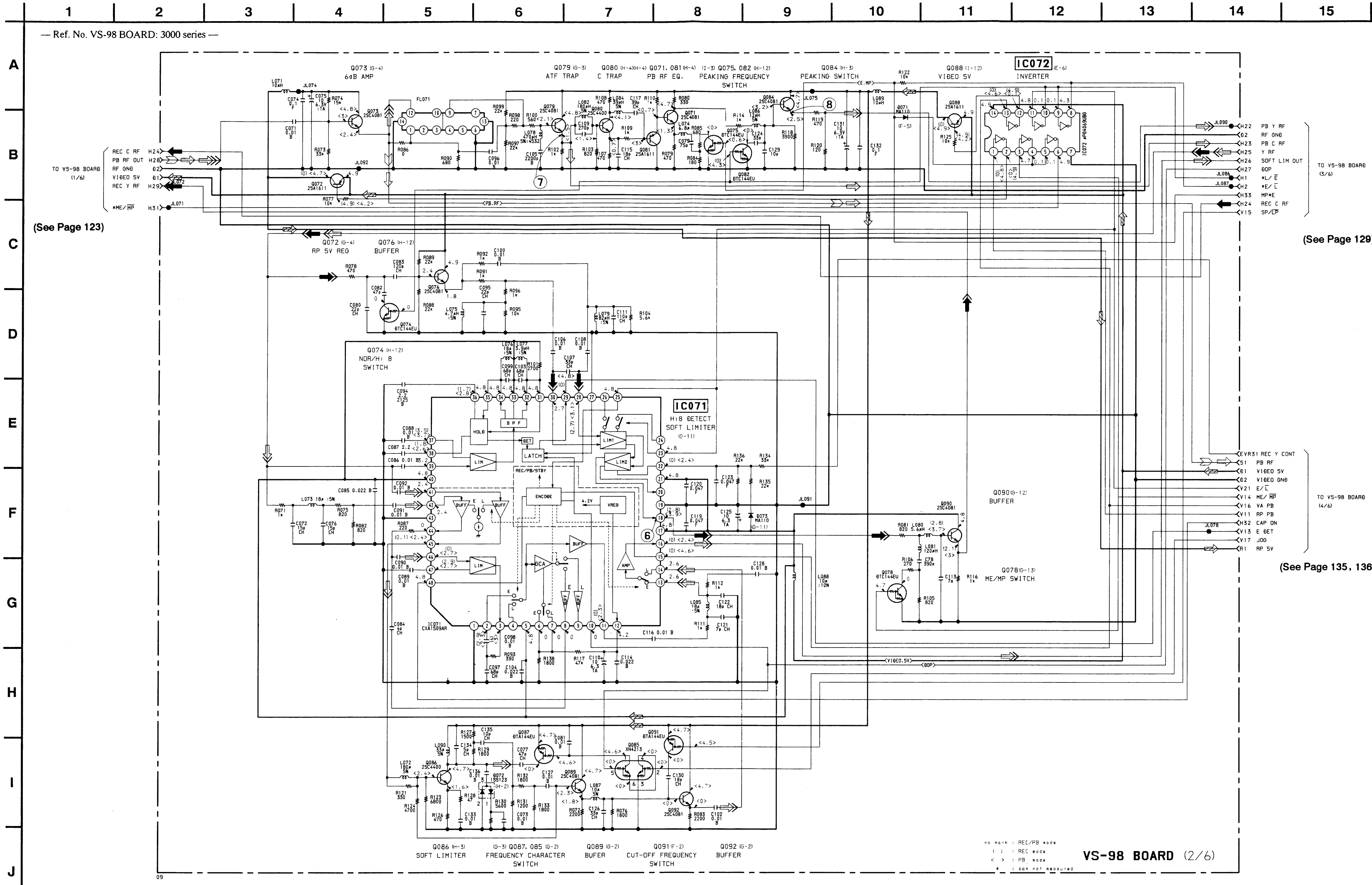
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»		➡
PB	⇨	⇨»	⇨»»	⇨

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)			
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal			▷

VS-98 (VIDEO) SCHEMATIC DIAGRAM

- Refer to page 119 for Printed Wiring Board.

— Ref. No. VS-98 BOARD: 3000 series —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A
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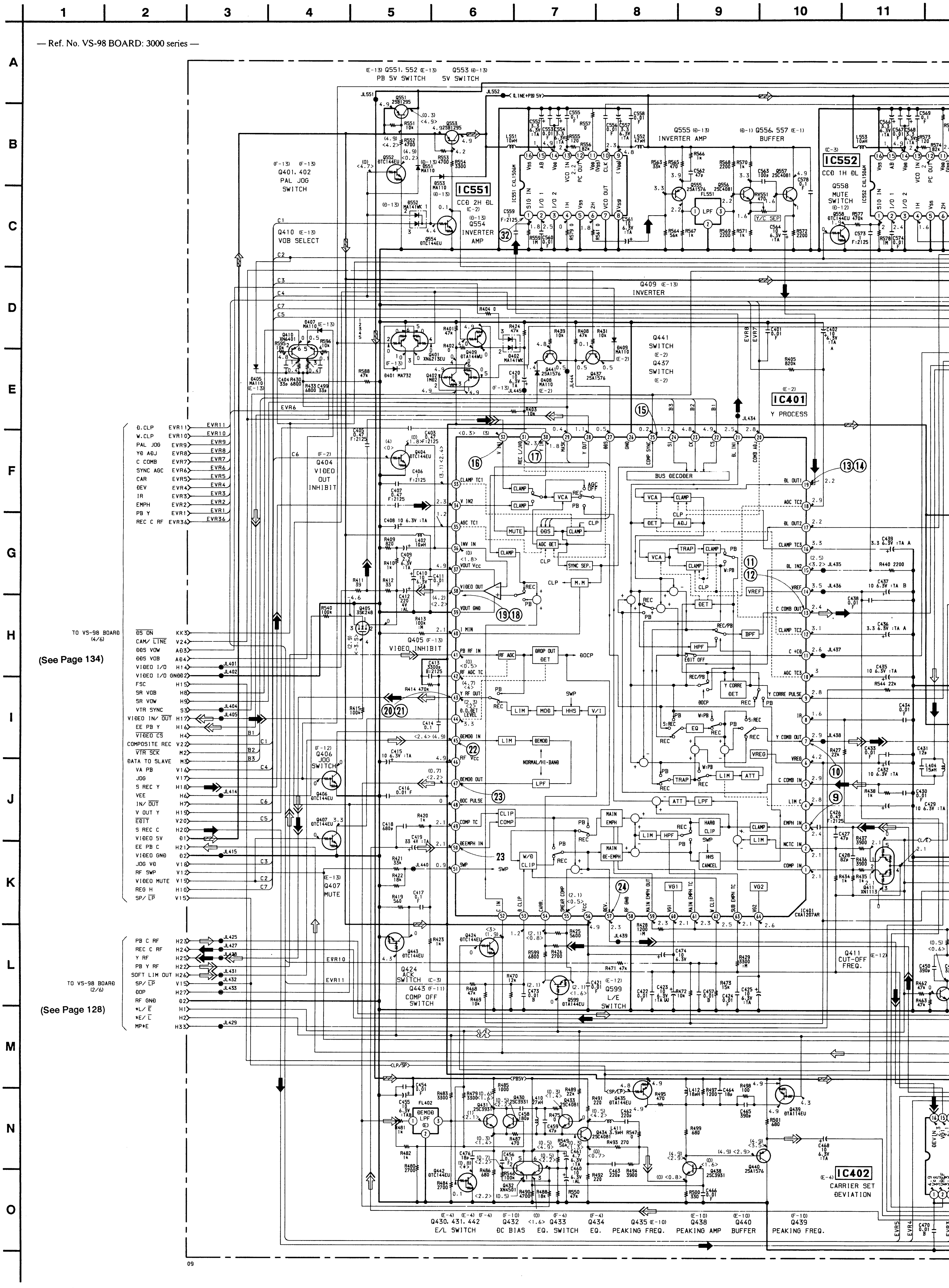
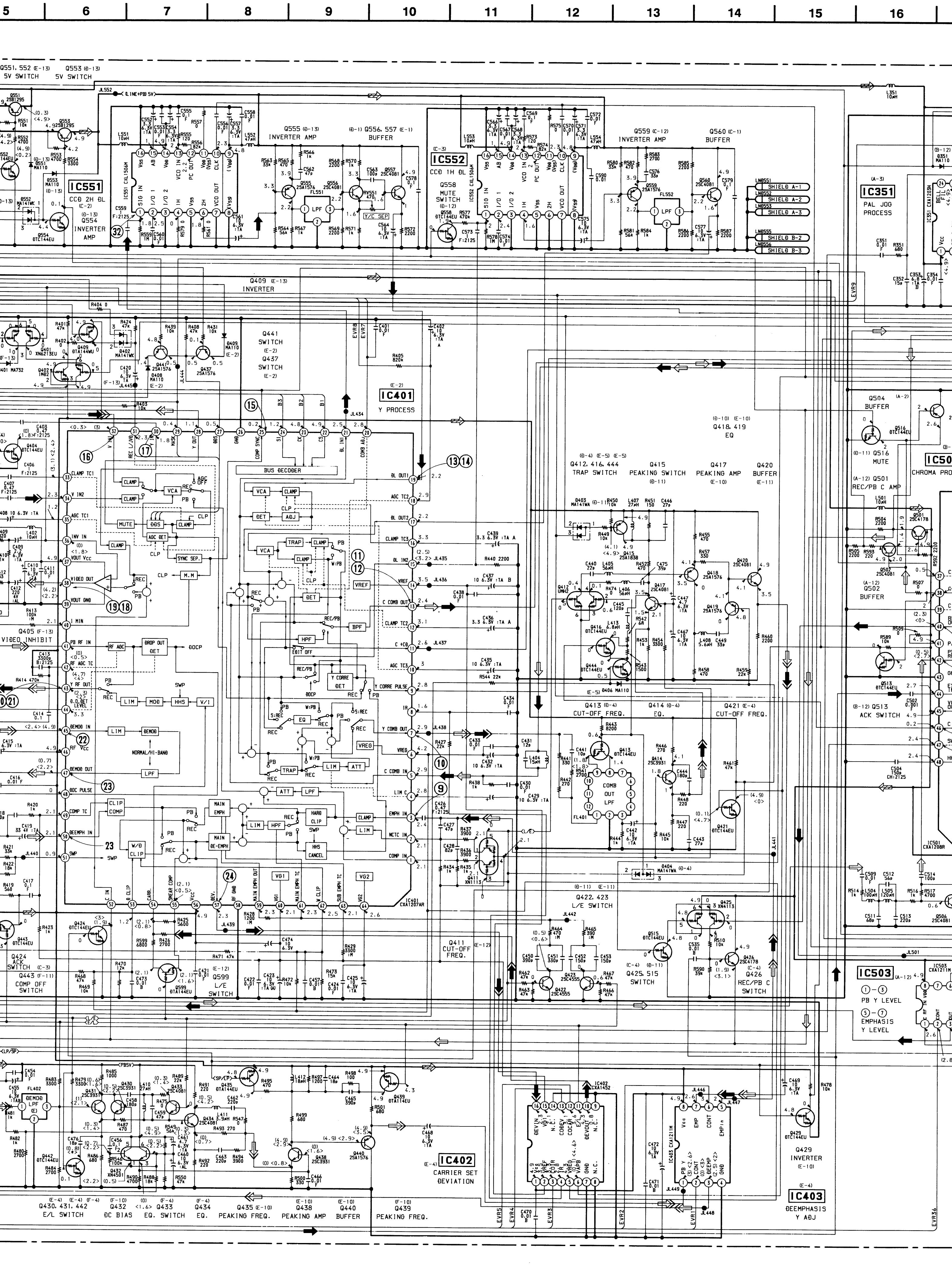
C
D
E
F
G
H
I
J
(See Page 123)
(See Page 129)
(See Page 135, 136)
TO VS-98 BOARD (1/6)
REC C RF H24
PB RF OUT H28
RF GND θ2
VIDEO 5V θ1
REC Y RF H29
*ME/MP H31
Q073 (G-4) 6dB AMP
Q079 (G-3) ATF TRAP
Q080 (H-4) C TRAP
Q071, 081 (H-4) PB RF EQ.
Q075, 082 (H-12) PEAKING FREQUENCY SWITCH
Q084 (H-3) PEAKING SWITCH
Q088 (I-12) VIDEO 5V
IC072 (E-6) INVERTER
Q072 (G-4) RP 5V REG
Q076 (H-12) BUFFER
Q074 (H-12) NOR/HI 8 SWITCH
IC071 HI8 DETECT SOFT LIMITER (G-11)
IC071 CXA1509AR
Q090 (G-12) BUFFER
Q078 (G-13) ME/MP SWITCH
H22 PB Y RF
θ2 RF GND
H23 PB C RF
H25 Y RF
H26 SOFT LIM OUT
H27 θOP
H1 *L/E
H2 *E/L
H33 MP*E
H24 REC C RF
V15 SP/LP
TO VS-98 BOARD (3/6)
EVR31 REC Y CONT
S1 PB RF
θ1 VIDEO 5V
θ2 VIDEO GND
V21 E/L
V14 ME/MP
V16 VA PB
V11 RP PB
H32 CAP ON
V13 E DET
V17 JOG
R1 RP 5V
TO VS-98 BOARD (4/6)
Q086 (H-3) SOFT LIMITER
(G-3) Q087, 085 (G-2) FREQUENCY CHARACTER SWITCH
Q089 (G-2) BUFER
Q091 (F-2) CUT-OFF FREQUENCY SWITCH
Q092 (G-2) BUFFER
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
* : can not measured
VS-98 BOARD (2/6)

VIDEO VIDEO

— Ref. No. VS-98 BOARD: 3000 series —


Q551, 552 PB 5V SWITCH
Q553 5V SWITCH
IC551 CCD 2H DL
Q554 INVERTER AMP
Q555 INVERTER AMP
Q556, 557 BUFFER
IC552 CCD 1H DL
Q558 MUTE SWITCH
Q401, 402 PAL JOG SWITCH
Q410 VDB SELECT
Q409 INVERTER
Q441 SWITCH
Q437 SWITCH
IC401 Y PROCESS
IC401 CXA1207AR
Q404 VIDEO OUT INHIBIT
Q405 VIDEO INHIBIT
Q406 JOG SWITCH
Q407 MUTE
Q424 ACK SWITCH
Q443 COMP OFF SWITCH
Q599 L/E SWITCH
Q411 CUT-OFF FREQ.
IC402 CARRIER SET DEVIATION
Q430, 431, 442 E/L SWITCH
Q432 DC BIAS
Q433 EQ. SWITCH
Q434 EQ.
Q435 PEAKING FREQ.
Q438 PEAKING AMP
Q440 BUFFER
Q439 PEAKING FREQ.
TO VS-98 BOARD (4/6)
(See Page 134)
TO VS-98 BOARD (2/6)
(See Page 128)

nted Wiring Board.


5
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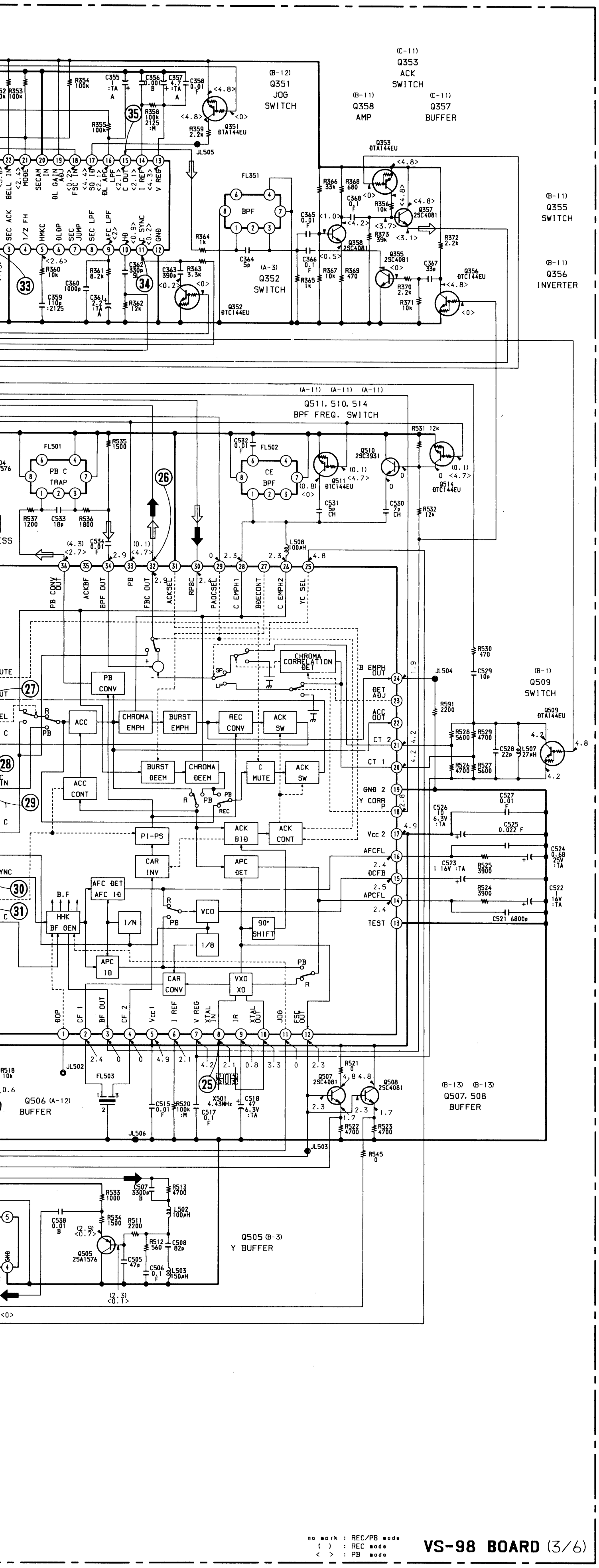
14
15
16
Q551, 552 (E-13) 5V SWITCH
Q553 (D-13) 5V SWITCH
IC551 CCD 2H DL (C-2)
(D-13) Q554 INVERTER AMP
Q555 (D-13) INVERTER AMP
(D-1) Q556, 557 (E-1) BUFFER
(C-3) IC552 CCD 1H DL
Q558 MUTE SWITCH (D-12)
Q559 (C-12) INVERTER AMP
Q560 (C-1) BUFFER
SHIELD A-1
SHIELD A-2
SHIELD A-3
SHIELD B-2
SHIELD B-3
(A-3) IC351 PAL JOG PROCESS
Q409 (E-13) INVERTER
Q441 SWITCH (E-2)
Q437 SWITCH (E-2)
(E-2) IC401 Y PROCESS
BUS DECODER
(D-10) (E-10) Q418, 419 EQ
(D-4) (E-5) (E-5) Q412, 416, 444 TRAP SWITCH
Q415 PEAKING SWITCH (D-11)
Q417 PEAKING AMP (E-10)
Q420 BUFFER (E-11)
Q504 (A-2) BUFFER
(D-11) Q516 MUTE
(A-12) Q501 REC/PB C AMP
IC50 CHROMA PRO
(A-12) Q502 BUFFER
(B-12) Q513 ACK SWITCH
Q405 (F-13) VIDEO INHIBIT
Q413 (D-4) CUT-OFF FREQ.
Q414 (D-4) EQ.
Q421 (E-4) CUT-OFF FREQ.
COMB OUT LPF
Q411 CUT-OFF FREQ. (E-12)
(D-11) (E-11) Q422, 423 L/E SWITCH
(C-4) (D-11) Q425, 515 SWITCH
(C-4) Q426 REC/PB C SWITCH
IC503 (A-12)
①-③ PB Y LEVEL
⑤-⑦ EMPHASIS Y LEVEL
Q424 ACK SWITCH (C-3)
Q443 (F-11) COMP OFF SWITCH
(E-12) Q599 L/E SWITCH
IC401 CXA1207AR
IC402 CXA1452
(E-4) IC402 CARRIER SET DEVIATION
IC403 CXA1211M
Q429 INVERTER (E-10)
(E-4) IC403 DEEMPHASIS Y ADJ
(E-4) (E-4) (F-4) Q430, 431, 442 E/L SWITCH
(F-10) Q432 DC BIAS
(F-4) Q433 EQ. SWITCH
(F-4) Q434 EQ.
Q435 (E-10) PEAKING FREQ.
(E-10) Q438 PEAKING AMP
(E-10) Q440 BUFFER
(F-10) Q439 PEAKING FREQ.
IC501 CXA1208R
IC503 CXA1211M


(B-12) Q351 JOG SWITCH
(C-11) Q353 ACK SWITCH
(B-11) Q358 AMP
(C-11) Q357 BUFFER
(B-11) Q355 SWITCH
(B-11) Q356 INVERTER
(A-3) Q352 SWITCH
FL351 BPF
(A-11) (A-11) (A-11) Q511, 510, 514 BPF FREQ. SWITCH
FL501 PB C TRAP
FL502 CE BPF
PB CONV OUT
ACKBF
BPF OUT
PB
FBC OUT
ACKSEL
RPBC
PAOCSEL
C EMPH1
BBECONT
C EMPH2
YC SEL
CHROMA CORRELATION DET
PB CONV
ACC
CHROMA EMPH
BURST EMPH
REC CONV
ACK SW
BURST DEEM
CHROMA DEEM
C MUTE
ACK SW
ACC CONT
P1-PS
ACK BID
ACK CONT
CAR INV
APC DET
AFC DET
AFC ID
HHK BF GEN
1/N
VCO
1/8
90° SHIFT
APC ID
CAR CONV
VXO XO
B EMPH OUT
DET ADJ
ACC OUT
CT 2
CT 1
GND 2
Y CORR
Vcc 2
AFCFL
DCFB
APCFL
TEST
BOP
CF 1
BF OUT
CF 2
Vcc1
I REF
V REG
XTAL IN
IR
XTAL OUT
JOG
FSC OUT
(B-1) Q509 SWITCH
(B-13) (B-13) Q507, 508 BUFFER
Q506 (A-12) BUFFER
Q505 (B-3) Y BUFFER
FL503
X501 4.43MHz
JL502
JL503
JL504
JL505
JL506

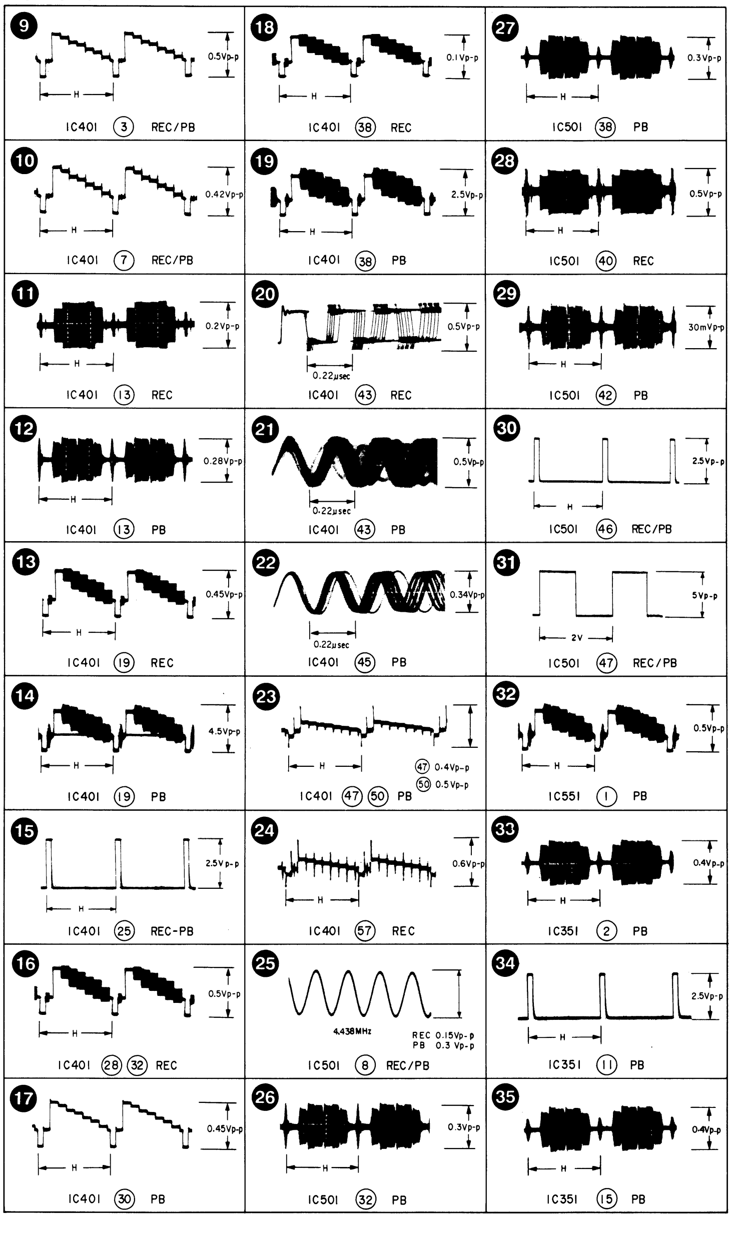
no mark : REC/PB mode
( ) : REC mode
< > : PB mode

VS-98 BOARD (3/6)

- **SIGNAL PATH**

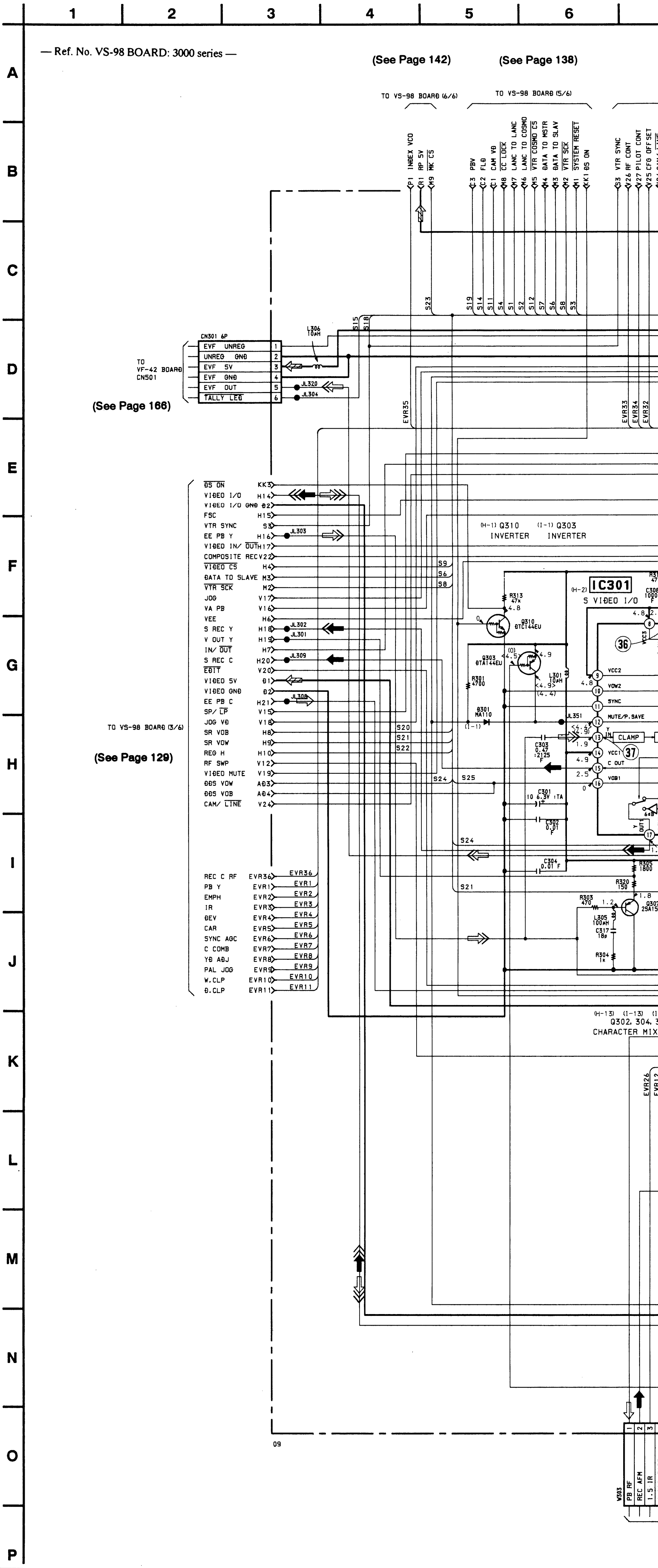
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛	⋙	
PB	⇨	⇨		

VS-98 BOARD (3/6)



VS-98 (VIDEO) SCHEMATIC DIAGRAM

• Refer to page 119 for Printed Wiring Board.


1
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A
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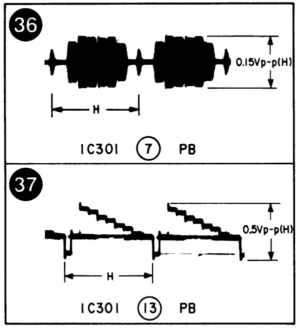
C
D
E
F
G
H
I
J
K
L
M
N
O
P
— Ref. No. VS-98 BOARD: 3000 series —
(See Page 142)
(See Page 138)
TO VS-98 BOARD (6/6)
TO VS-98 BOARD (5/6)
P1 INDEX VCO
R1 RP 5V
M9 MK CS
C3 PBV
C2 FLD
C1 CAM VD
M8 CC LOCK
M7 LANC TO LANC
M6 LANC TO COSMO
M5 VTR COSMO CS
M4 DATA TO MSTR
M3 DATA TO SLAV
M2 VTR SCK
M1 SYSTEM RESET
KK1 DS ON
S3 VTR SYNC
V26 RF CONT
V27 PILOT CONT
V25 CFG OFFSET
CN301 6P
EVF UNREG
UNREG GND
EVF 5V
EVF GND
EVF OUT
TALLY LED
TO VF-42 BOARD CN501
(See Page 166)
L306 10μH
JL320
JL304
EVR35
EVR33
EVR34
EVR32
DS ON
VIDEO I/O
VIDEO I/O GND
FSC
VTR SYNC
EE PB Y
VIDEO IN/OUT
COMPOSITE REC
VIDEO CS
DATA TO SLAVE
VTR SCK
JOG
VA PB
VEE
S REC Y
V OUT Y
IN/OUT
S REC C
EDIT
VIDEO 5V
VIDEO GND
EE PB C
SP/LP
JOG VD
SR VDB
SR VDW
REG H
RF SWP
VIDEO MUTE
DDS VDW
DDS VDB
CAM/LINE
TO VS-98 BOARD (3/6)
(See Page 129)
REC C RF
PB Y
EMPH
IR
DEV
CAR
SYNC AGC
C COMB
YD ADJ
PAL JOG
W.CLP
D.CLP
EVR36
EVR1
EVR2
EVR3
EVR4
EVR5
EVR6
EVR7
EVR8
EVR9
EVR10
EVR11
(H-1) Q310 INVERTER
(I-1) Q303 INVERTER
IC301
S VIDEO I/O
Q310 DTC144EU
Q303 DTA144EU
R313 47k
R301 4700
L301 10μH
D301 MA110
JL351
C303 0.47
C301 10 6.3V TA
C302 0.01
C304 0.01
R305 1800
R320 150
R303 470
L305 100μH
C317 18p
R304 1k
Q307 2SA15
VCC2
VDW2
SYNC
MUTE/P.SAVE
CLAMP
VCC1
C OUT
VDB1
36
37
(H-13) (I-13)
Q302, 304, 3
CHARACTER MIX
EVR26
EVR12
PB RF
REC AFM
1.5 IR
09

VS-98 BOARD (4/6)



• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

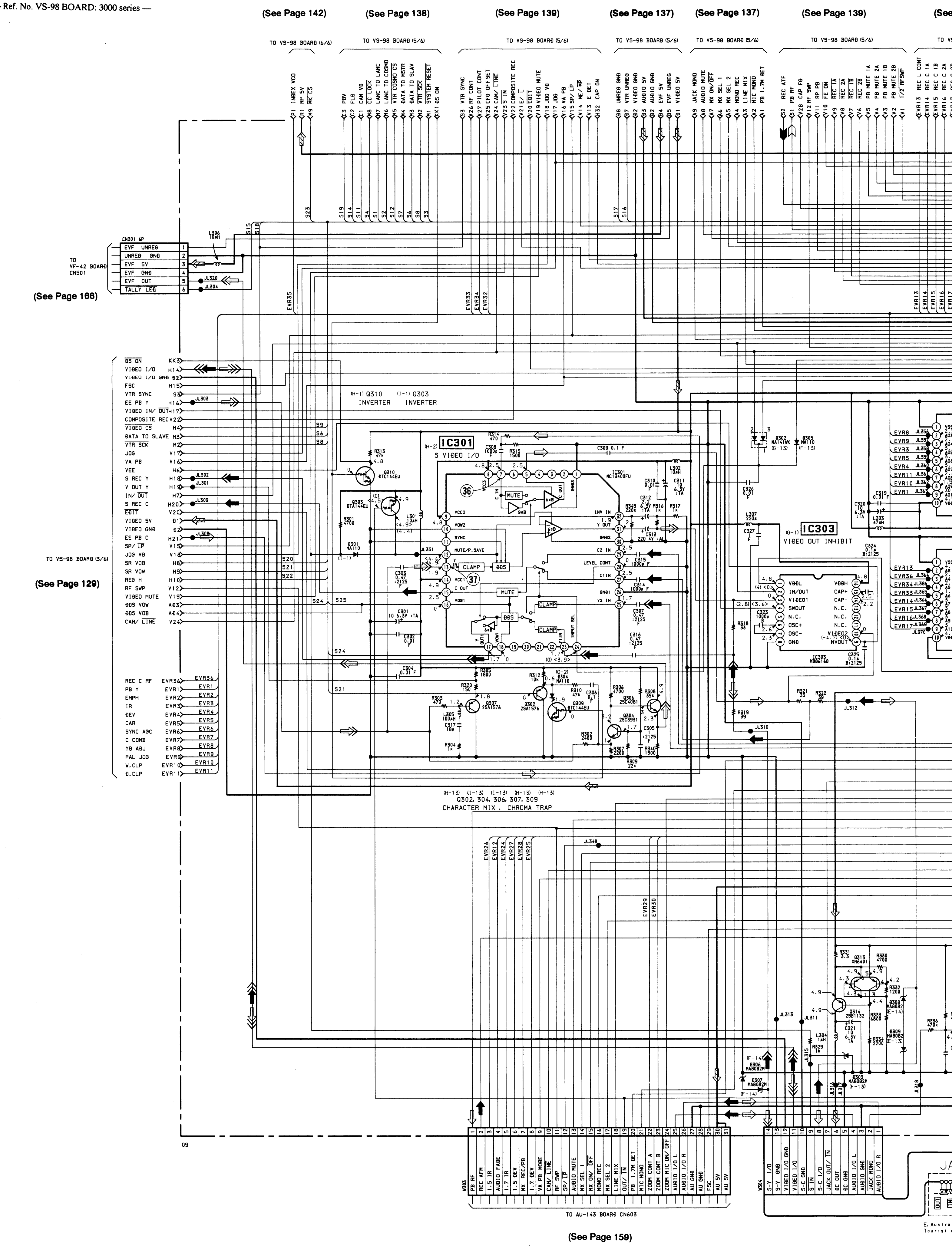
	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)			
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal	➤		▷

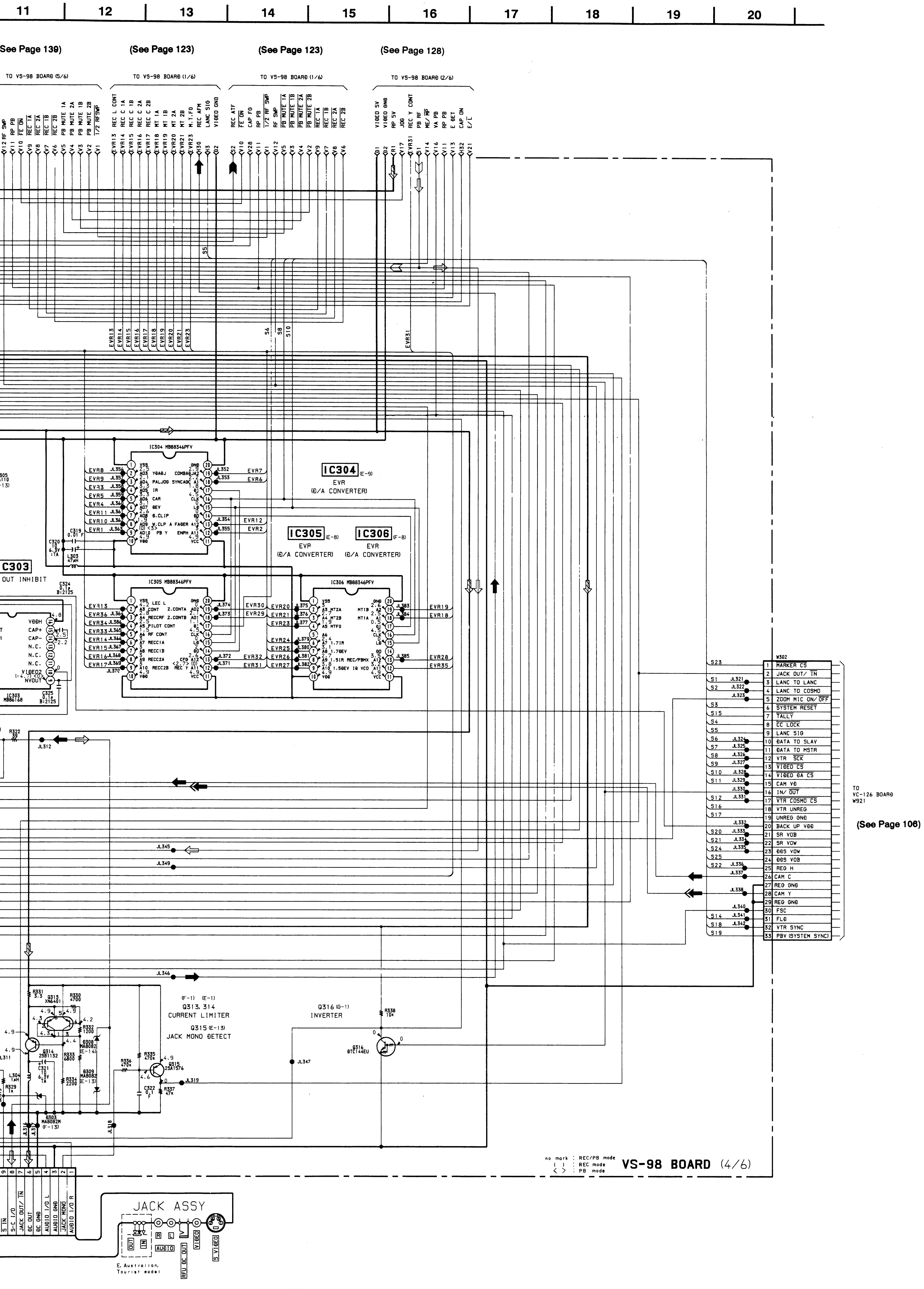
98 (VIDEO) SCHEMATIC DIAGRAM

• Refer to page 119 for Printed Wiring Board.

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12

- Ref. No. VS-98 BOARD: 3000 series —


(See Page 142)
(See Page 138)
(See Page 139)
(See Page 137)
(See Page 137)
(See Page 139)
TO VS-98 BOARD (6/6)
TO VS-98 BOARD (5/6)
P1 INDEX VCO
R1 RP 5V
H9 MK CS
C3 PBV
C2 FLD
C1 CAM VD
D8 CC LOCK
D7 LANC TO LANC
D6 LANC TO COSMO
D5 VTR COSMO CS
D4 DATA TO MSTR
D3 DATA TO SLAV
D2 VTR SCK
D1 SYSTEM RESET
K1 DS ON
S3 VTR SYNC
V26 RF CONT
V27 PILOT CONT
V25 CFG OFF SET
V24 CAM/ LINE
V23 S IN
V22 COMPOSITE REC
V21 E/ E
V20 EDIT
V19 VIDEO MUTE
V18 JOG VD
V17 JOG
V16 VA PB
V15 SP/ LP
V14 ME/ MP
V13 E DET
D32 CAP ON
B8 UNREG GND
B7 VTR UNREG
B2 VIDEO GND
B3 AUDIO 5V
B2 AUDIO GND
B4 EVF 5V
B5 EVF UNREG
B1 VIDEO 5V
A9 JACK MONO
A8 AUDIO MUTE
A7 MX ON/OFF
A6 MX SEL 1
A5 MX SEL 2
A4 MONO REC
A3 LINE MIX
A2 MIC MONO
A1 PB 1.7M DET
S2 REC ATF
S1 PB RF
V28 CAP FG
V12 RF SWP
V11 RP PB
V10 FE ON
V9 REC 1A
V8 REC 2A
V7 REC 1B
V6 REC 2B
V5 PB MUTE 1A
V4 PB MUTE 2A
V3 PB MUTE 1B
V2 PB MUTE 2B
V1 1/2 RFSWP
EVR13 REC L CONT
EVR14 REC C 1A
EVR15 REC C 1B
EVR16 REC C 2A
CN301 6P
EVF UNREG
UNREG GND
EVF 5V
EVF GND
EVF OUT
TALLY LED
TO VF-42 BOARD CN501
(See Page 166)
L306 10μH
JL320
JL304
DS ON KK3
VIDEO I/O H14
VIDEO I/O GND B2
FSC H15
VTR SYNC S3
EE PB Y H16
VIDEO IN/ OUT H17
COMPOSITE REC V22
VIDEO CS H4
DATA TO SLAVE H3
VTR SCK H2
JOG V17
VA PB V16
VEE H6
S REC Y H18
V OUT Y H19
IN/ OUT H7
S REC C H20
EDIT V20
VIDEO 5V B1
VIDEO GND B2
EE PB C H21
SP/ LP V15
JOG VD V18
SR VDB H8
SR VDW H9
REG H H10
RF SWP V12
VIDEO MUTE V19
DDS VDW AD3
DDS VDB AD4
CAM/ LINE V24
TO VS-98 BOARD (3/6)
(See Page 129)
REC C RF EVR36
PB Y EVR1
EMPH EVR2
IR EVR3
DEV EVR4
CAR EVR5
SYNC AGC EVR6
C COMB EVR7
YD ADJ EVR8
PAL JOG EVR9
W.CLP EVR10
D.CLP EVR11
(H-1) Q310 INVERTER
(I-1) Q303 INVERTER
IC301
S VIDEO I/O
IC301 MC13400FU
Q310 DTC144EU
Q303 DTA144EU
VCC2
SYNC
MUTE/P.SAVE
CLAMP
DDS
VCC1
C OUT
VOB1
MUTE
INV IN
Y OUT
GND2
C2 IN
LEVEL CONT
C1IN
GND1
Y2 IN
INPUT SEL
IC303
VIDEO OUT INHIBIT
IC303 MB86168
VDDL
IN/OUT
VIDEO1
SWOUT
N.C.
OSC+
OSC-
GND
VDDH
CAP+
CAP-
VIDEO2 NVOUT
D302 MA141WK
D305 MA110
D301 MA110
D304 MA110
(H-13) (I-13) (I-13) (H-13) (H-13)
Q302, 304, 306, 307, 309
CHARACTER MIX , CHROMA TRAP
Q307 2SA1576
Q302 2SA1576
Q309 DTC144EU
Q306 2SC4081
Q304 2SC3931
Q313 XN6401
Q314 2SB1132
D303 MA8082M
D306 MA8082M
D307 MA8082M
D308 MA8082M
D309 MA8082M
JL310
JL311
JL312
JL313
JL348
VS03
PB RF
REC AFM
1.5 IR
AUDIO FADE
1.7 IR
MX REC/PB
1.7 DEV
VA PB MODE
CAM/ LINE
RF SWP
SP/ LP
AUDIO MUTE
MX SEL 1
MX ON/ OFF
MONO REC
MX SEL 2
LINE MIX
OUT/ IN
PB 1.7M DET
MIC MONO
ZOOM CONT A
ZOOM CONT B
ZOOM MIC ON/ OFF
AUDIO I/O L
AUDIO I/O R
AU GND
FSC
AU 5V
TO AU-143 BOARD CN603
(See Page 159)
VS04
S-Y I/O
S-Y GND
VIDEO GND
VIDEO I/O
S-C GND
S IN
S-C I/O
JACK OUT/ IN
DC OUT
DC GND
AUDIO GND
JACK MONO
09


11
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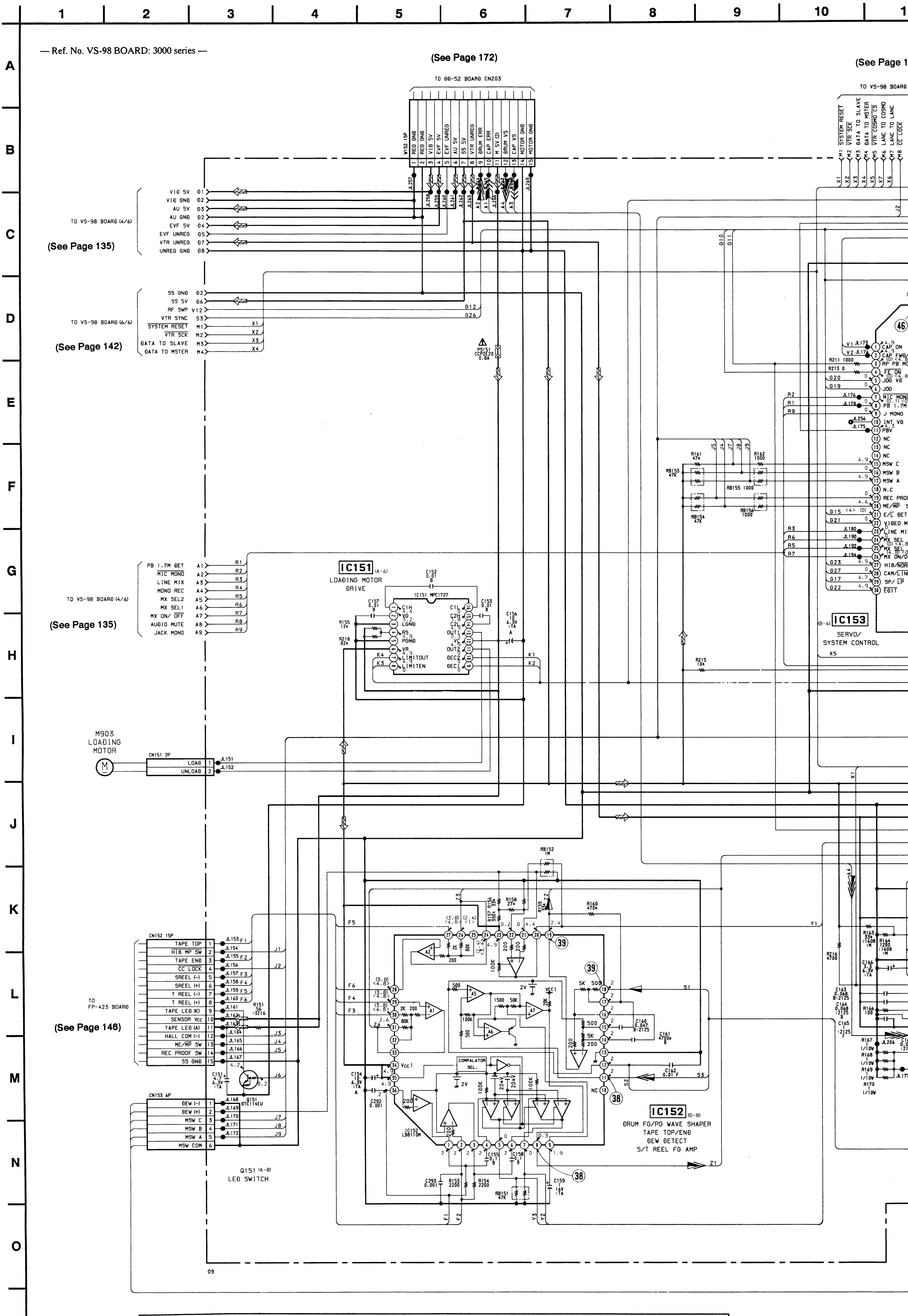
18
19
20
(See Page 139)
(See Page 123)
(See Page 123)
(See Page 128)
TO VS-98 BOARD (5/6)
TO VS-98 BOARD (1/6)
TO VS-98 BOARD (1/6)
TO VS-98 BOARD (2/6)
IC304 MB88346PFV
IC304 (E-9)
EVR
(D/A CONVERTER)
IC305 (E-8)
EVR
(D/A CONVERTER)
IC306 (F-8)
EVR
(D/A CONVERTER)
IC305 MB88346PFV
IC306 MB88346PFV
IC303
OUT INHIBIT
W302
1 MARKER CS
2 JACK OUT/ IN
3 LANC TO LANC
4 LANC TO COSMO
5 ZOOM MIC ON/ OFF
6 SYSTEM RESET
7 TALLY
8 CC LOCK
9 LANC SIG
10 DATA TO SLAV
11 DATA TO MSTR
12 VTR SCK
13 VIDEO CS
14 VIDEO DA CS
15 CAM VD
16 IN/ OUT
17 VTR COSMO CS
18 VTR UNREG
19 UNREG GND
20 BACK UP VDD
21 SR VDD
22 SR VDW
23 DDS VDW
24 DDS VDD
25 REG H
26 CAM C
27 REG GND
28 CAM Y
29 REG GND
30 FSC
31 FLD
32 VTR SYNC
33 PBV (SYSTEM SYNC)
TO VC-126 BOARD W921
(See Page 106)
Q313, 314
CURRENT LIMITER
Q315 (E-13)
JACK MONO DETECT
Q316 (G-1)
INVERTER
JACK ASSY
AUDIO
VIDEO
S VIDEO
RFU DC OUT
E, Australian, Tourist model
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
VS-98 BOARD (4/6)

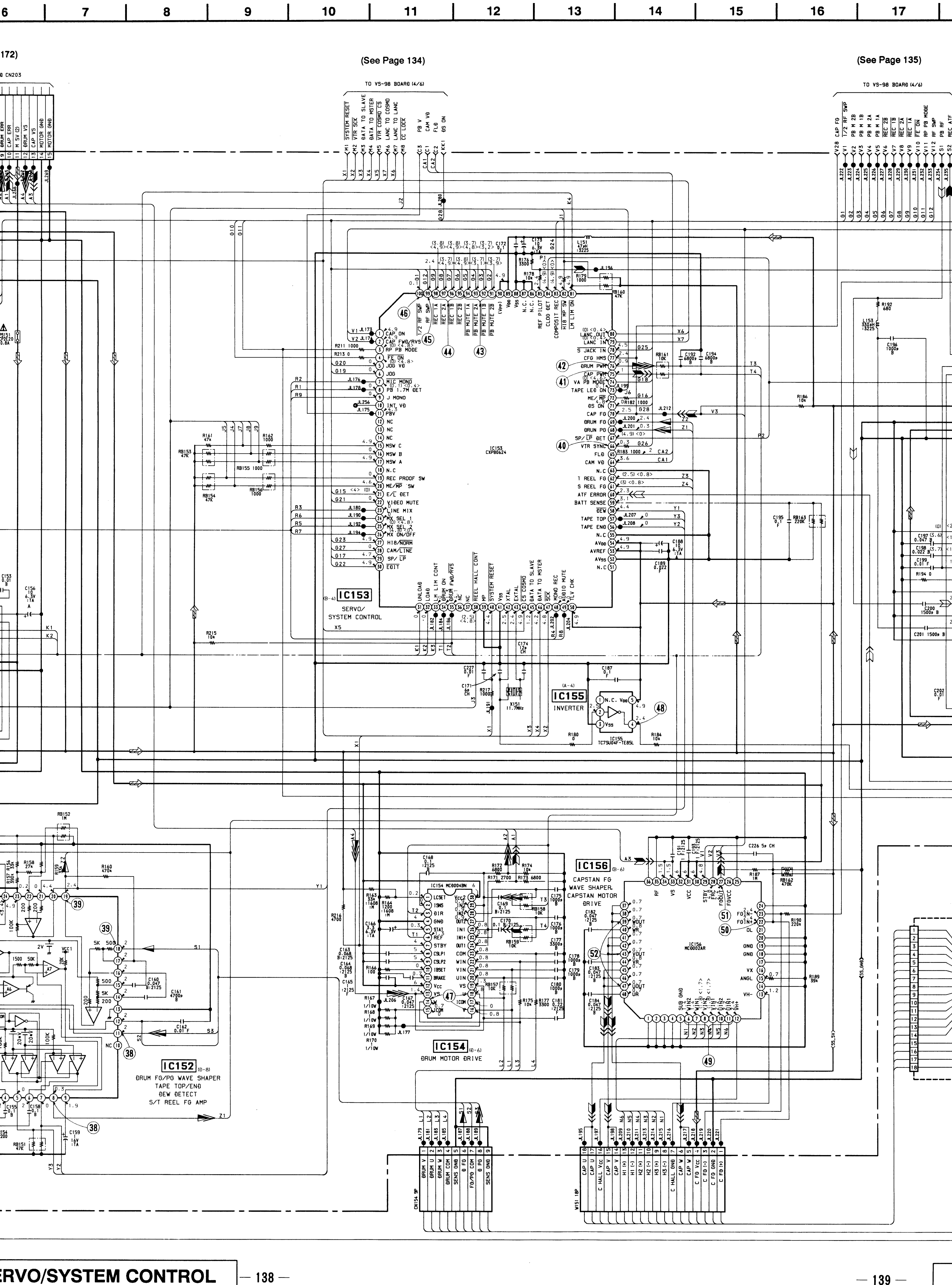
• Refer to page 119 for Printed Wiring Board.

— Ref. No. VS-98 BOARD: 3000 series —



(See Page 172)
TO DD-52 BOARD CN203
W152 15P
REG GND
VIO 5V
EVF 5V
EVF UNREG
AU 5V
SS 5V
VTR UNREG
DRUM ERR
CAP ERR
M 5V (2)
DRUM VS
CAP VS
MOTOR GND
TO VS-98 BOARD (4/6)
(See Page 135)
VIO 5V
VIO GND
AU 5V
AU GND
EVF 5V
EVF UNREG
VTR UNREG
UNREG GND
TO VS-98 BOARD (6/6)
(See Page 142)
SS GND
SS 5V
RF SWP
VTR SYNC
SYSTEM RESET
VTR SCK
DATA TO SLAVE
DATA TO MSTER
PS151 CCP2E20 0.8A
TO VS-98 BOARD (4/6)
(See Page 135)
PB 1.7M DET
MIC MONO
LINE MIX
MONO REC
MX SEL2
MX SEL1
MX ON/OFF
AUDIO MUTE
JACK MONO
IC151 (A-6)
LOADING MOTOR DRIVE
IC151 MPC1727
M903 LOADING MOTOR
CN151 2P
LOAD
UNLOAD
TO FP-423 BOARD
(See Page 146)
CN152 15P
TAPE TOP
H18 MP SW
TAPE END
CC LOCK
SREEL (-)
SREEL (+)
T REEL (-)
T REEL (+)
TAPE LED (K)
SENSOR Vcc
TAPE LED (A)
HALL COM (-)
ME/MP SW
REC PROOF SW
SS GND
CN153 6P
DEW (-)
DEW (+)
MSW C
MSW B
MSW A
MSW COM
Q151 DTC114EU
Q151 (A-8)
LED SWITCH
IC152 LB8110M
COMPALATOR SEL.
IC152 (D-8)
DRUM FG/PG WAVE SHAPER
TAPE TOP/END
DEW DETECT
S/T REEL FG AMP
(See Page 1
TO VS-98 BOARD
SYSTEM RESET
VTR SCK
DATA TO SLAVE
DATA TO MSTER
VTR COSMO CS
LANC TO COSMO
LANC TO LANC
CC LOCK
IC153 (B-4)
SERVO/
SYSTEM CONTROL
CAP ON
CAP FWD
RP PB MO
FE ON
JOG VD
JOG
MIC MONO
PB 1.7M
J MONO
INT VD
PBV
NC
MSW C
MSW B
MSW A
N.C
REC PROO
ME/MP S
E/E DET
VIDEO M
LINE MI
MX SEL
MX SEL
MX ON/O
H18/NOR
CAM/LIN
SP/LP
EDIT
09

9 for Printed Wiring Board.


6
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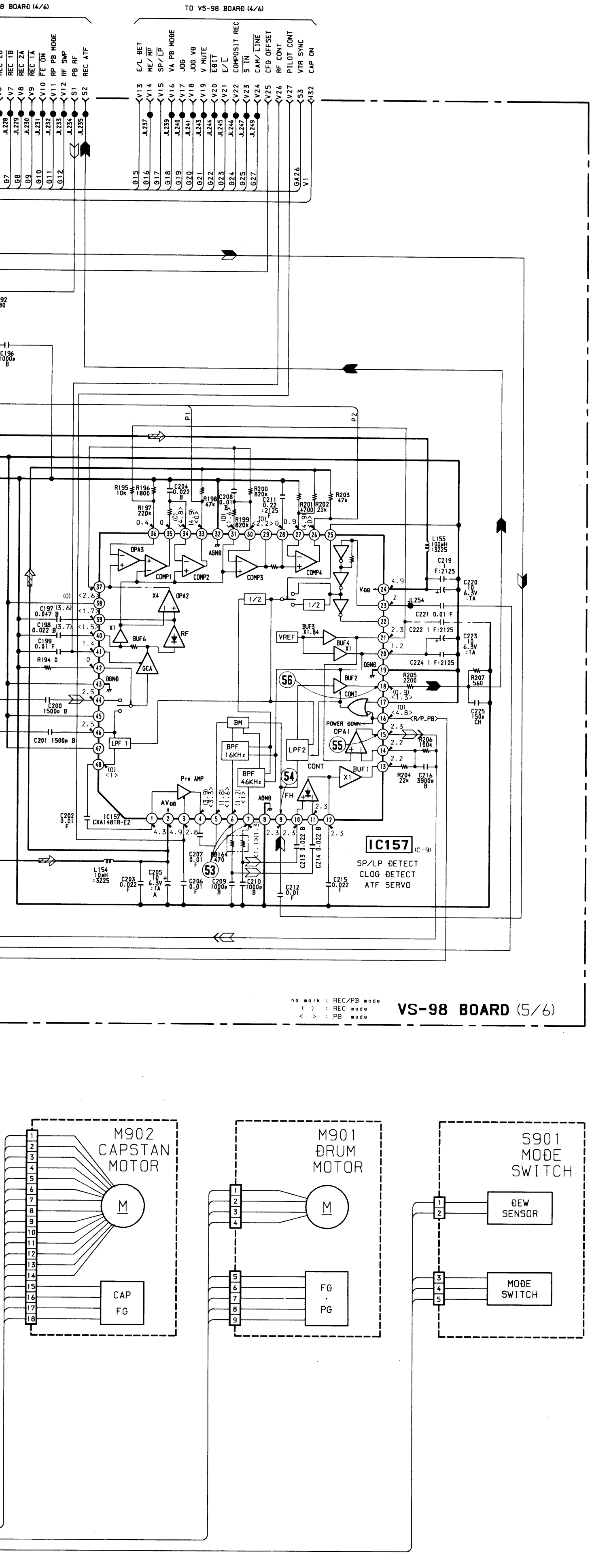
172)
(See Page 134)
TO VS-98 BOARD (4/6)
(See Page 135)
TO VS-98 BOARD (4/6)
IC153
SERVO/
SYSTEM CONTROL
IC153
CXP80624
IC155
INVERTER
IC155
TC7SU04F-TE85L
X151
11.7MHz
IC156
CAPSTAN FG
WAVE SHAPER,
CAPSTAN MOTOR
DRIVE
IC156
MC0002AR
IC154
DRUM MOTOR DRIVE
IC154 MC0004BN
IC152
DRUM FG/PG WAVE SHAPER
TAPE TOP/END
DEW DETECT
S/T REEL FG AMP
CN154 9P
WI151 18P

age 135)

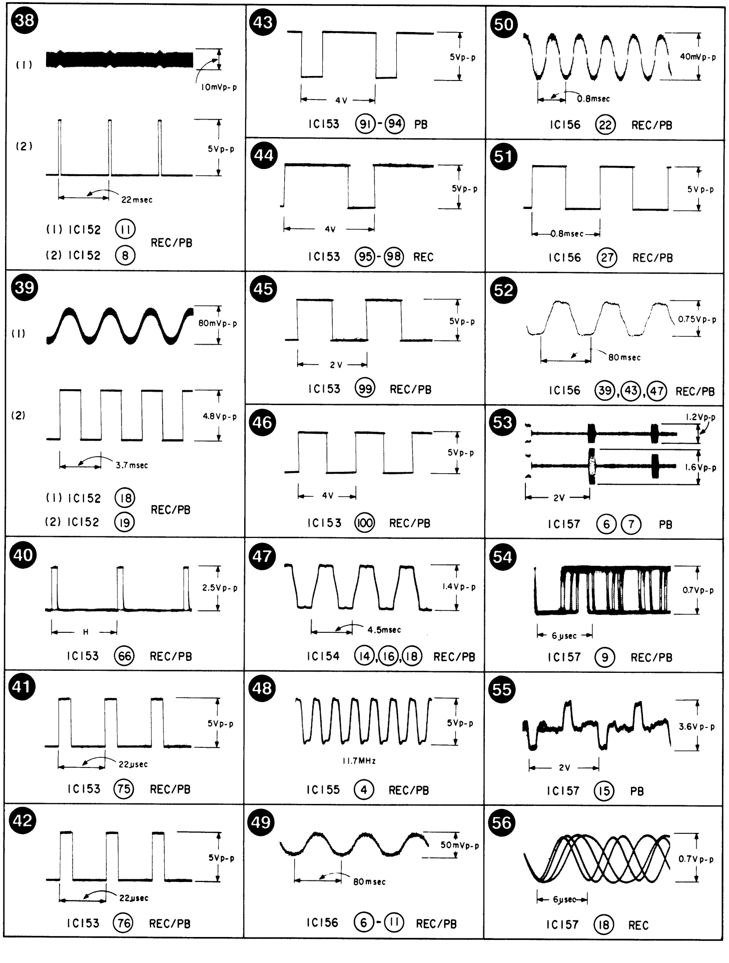
(See Page 134 ,135)


TO VS-98 BOARD (4/6)
E/L DET
ME/MP
SP/LP
VA PB MODE
JOG
JOG V0
V MUTE
EDIT
E/L
COMPOSIT REC
S IN
CAM/LINE
CFG OFFSET
RF CONT
PILOT CONT
VTR SYNC
CAP ON
REC 1B
REC 2A
REC 1A
FE ON
RP PB MODE
RF SWP
PB RF
REC ATF
P1
P2
OPA3
COMP1
COMP2
COMP3
COMP4
X4
OPA2
RF
BUF6
GCA
VREF
BUF3
BUF4
BUF2
CONT
POWER DOWN
OPA1
BUF1
BM
BPF 16KHz
BPF 46KHz
LPF 1
LPF2
Pre AMP
IC157 CXA1481R-E2
IC157 (C-9)
SP/LP DETECT
CLOG DETECT
ATF SERVO
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
VS-98 BOARD (5/6)
M902
CAPSTAN
MOTOR
M
CAP
FG
M901
DRUM
MOTOR
FG
PG
S901
MODE
SWITCH
DEW SENSOR
MODE SWITCH

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷▷	
Drum servo (speed and phase)		▷▷▷	
Capstan speed servo			
Capstan phase servo	➤›	➢›	⊃›
Capstan servo (speed and phase)		➢››	
Ref. signal	➤	➢	⊃

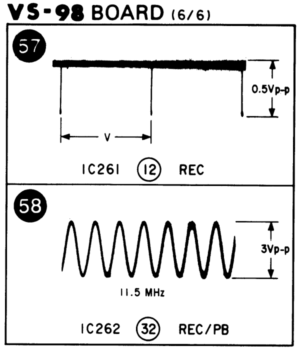
VS-98 BOARD (5/6)

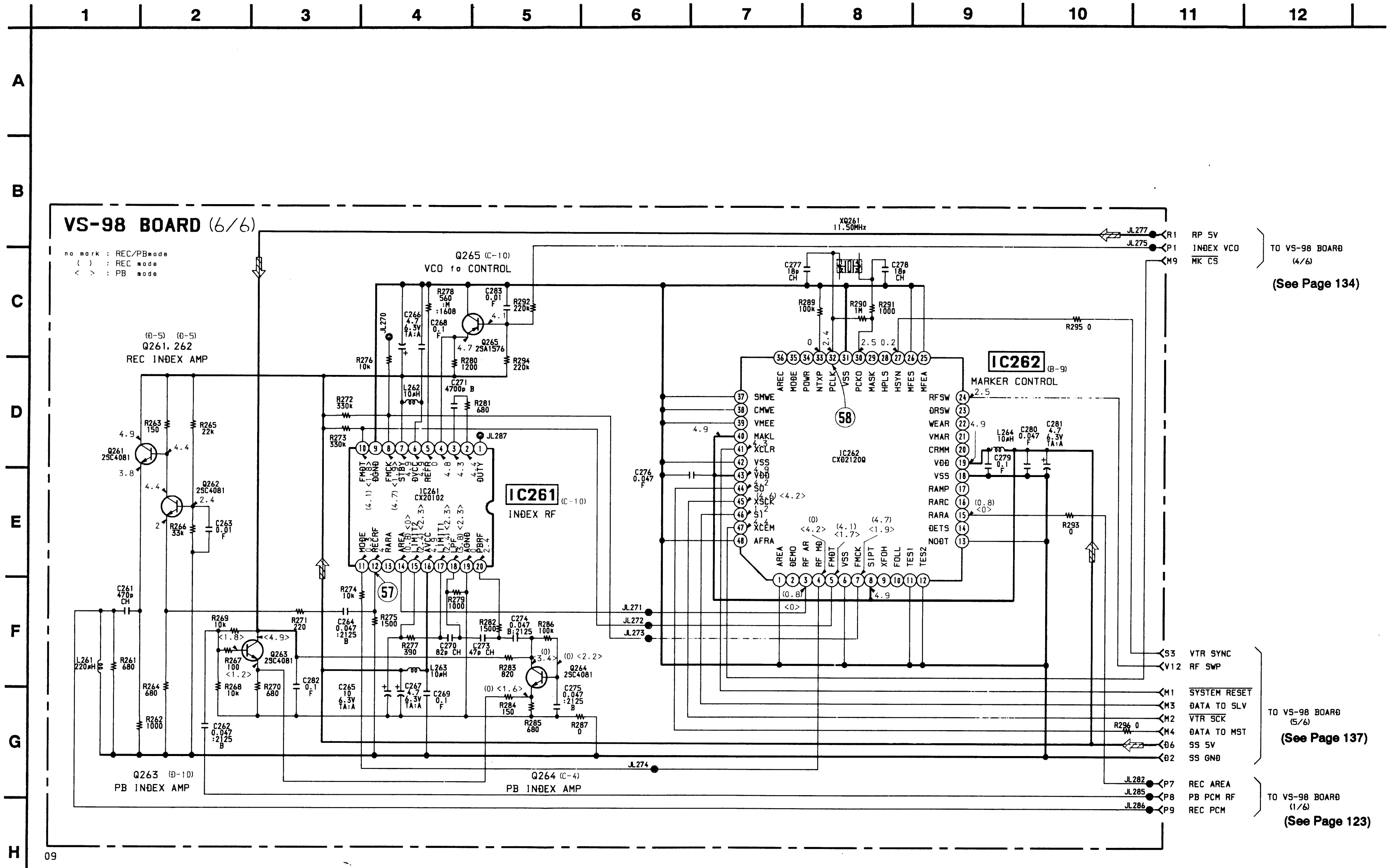


VS-98 (INDEX MARKER) SCHEMATIC DIAGRAM

— Ref. No. VS-98 BOARD: 3000 series —

- Refer to page 119 for Printed Wiring Board.





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12
A
B
C
D
E
F
G
H
I
J
VS-98 BOARD (6/6)
no mark : REC/PBmode
( ) : REC mode
< > : PB mode
Q265 (C-10)
VCO to CONTROL
Q265 2SA1576
Q261, 262
REC INDEX AMP
Q261 2SC4081
Q262 2SC4081
IC261 CX20102
IC261 (C-10)
INDEX RF
IC262 (B-9)
MARKER CONTROL
IC262 CXD2120Q
XQ261 11.50MHz
Q263 2SC4081
Q264 2SC4081
Q263 (D-10)
PB INDEX AMP
Q264 (C-4)
PB INDEX AMP
SMWE
CMWE
VMEE
MAKL
XCLR
VSS
VDD
SO
XSCK
SI
XCEM
AFRA
AREC
MODE
POWR
NTXP
PCLK
VSS
PCKO
MASK
HPLS
HSYN
MFES
MFEA
RFSW
DRSW
WEAR
VMAR
CRMM
VDD
VSS
RAMP
RARC
RARA
DETS
NDDT
AREA
DEMO
RF AR
RF MD
FMDT
VSS
FMCK
SIPT
XFOH
FOLL
TES1
TES2
R1 RP 5V
P1 INDEX VCO
M9 MK CS
TO VS-98 BOARD (4/6)
(See Page 134)
S3 VTR SYNC
V12 RF SWP
M1 SYSTEM RESET
M3 DATA TO SLV
M2 VTR SCK
M4 DATA TO MST
D6 SS 5V
D2 SS GND
TO VS-98 BOARD (5/6)
(See Page 137)
P7 REC AREA
P8 PB PCM RF
P9 REC PCM
TO VS-98 BOARD (1/6)
(See Page 123)
JL271
JL272
JL273
JL274
JL275
JL277
JL282
JL285
JL286
JL287
JL270
57
58
09

TO VS-98 BOARD
(4/6)
(See Page 134)

TO VS-98 BOARD
(5/6)
(See Page 137)

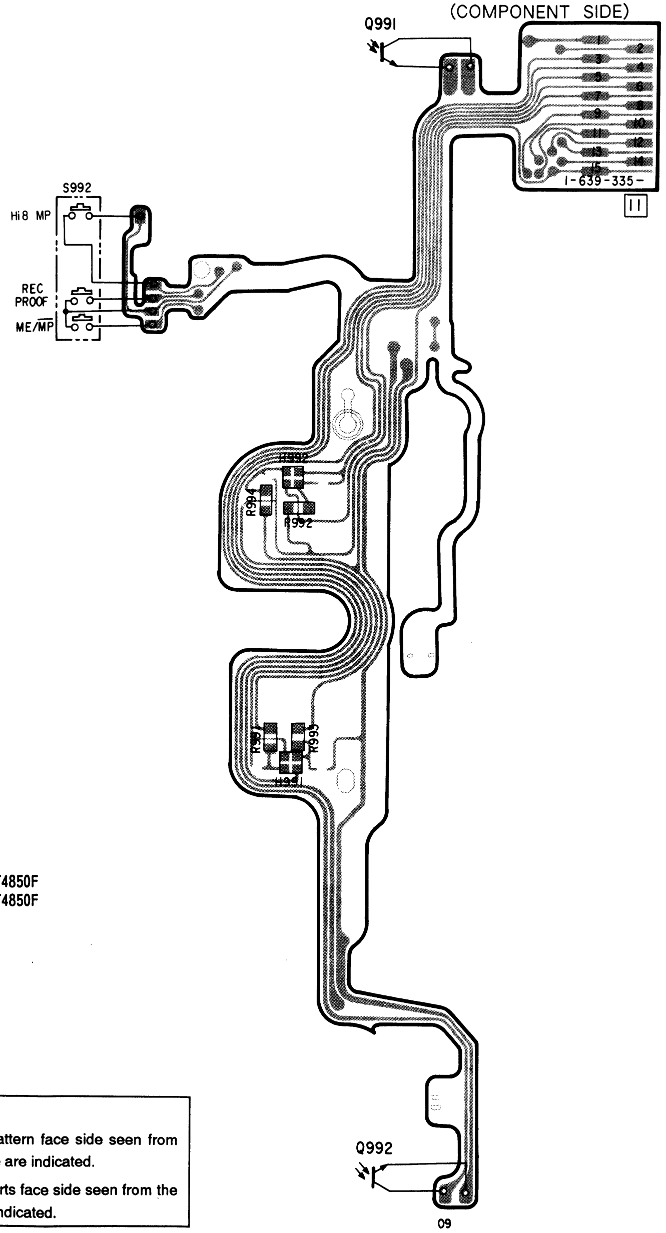
TO VS-98 BOARD
(1/6)
(See Page 123)

FP-423 (TAPE SENSOR, SWITCH) PRINTED WIRING BOARD

— Ref. No. FP-423 BOARD: 4000 series —

FP-423 FLEXIBLE BOARD

(COMPONENT SIDE)


Q991
1
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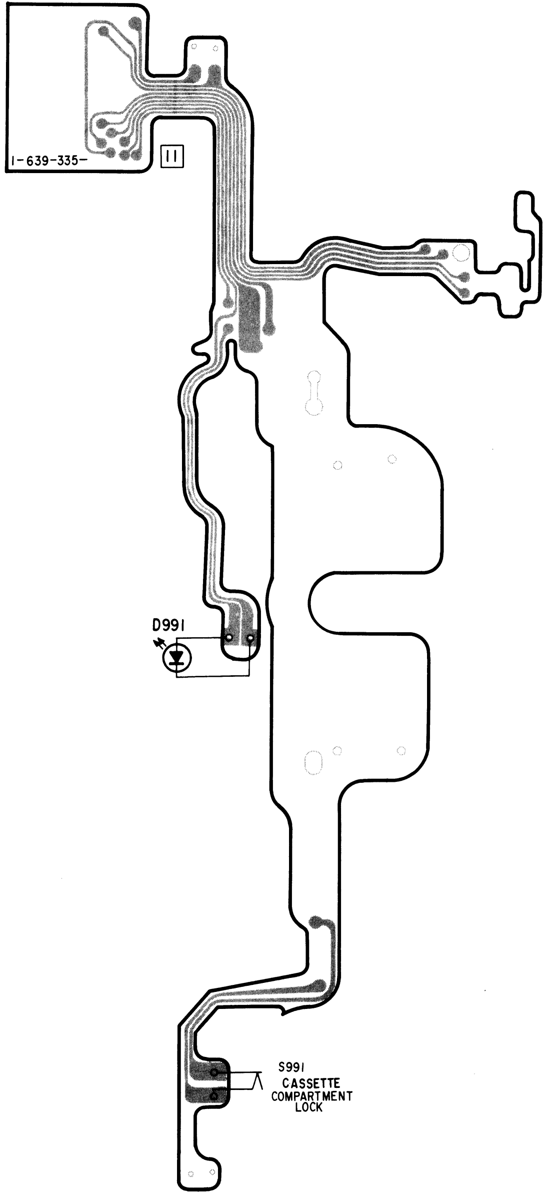
14
15
1-639-335-
11
S992
Hi8 MP
REC PROOF
ME/MP
H992
R994
R992
R997
R993
H991
Q992
09

FP-423 FLEXIBLE BOARD

(CONDUCTOR SIDE)


1-639-335-
11
D991
S991
CASSETTE COMPARTMENT LOCK

〈 DIODE 〉

D991	8-719-988-42	DIODE	GL453S

〈 TRANSISTOR 〉

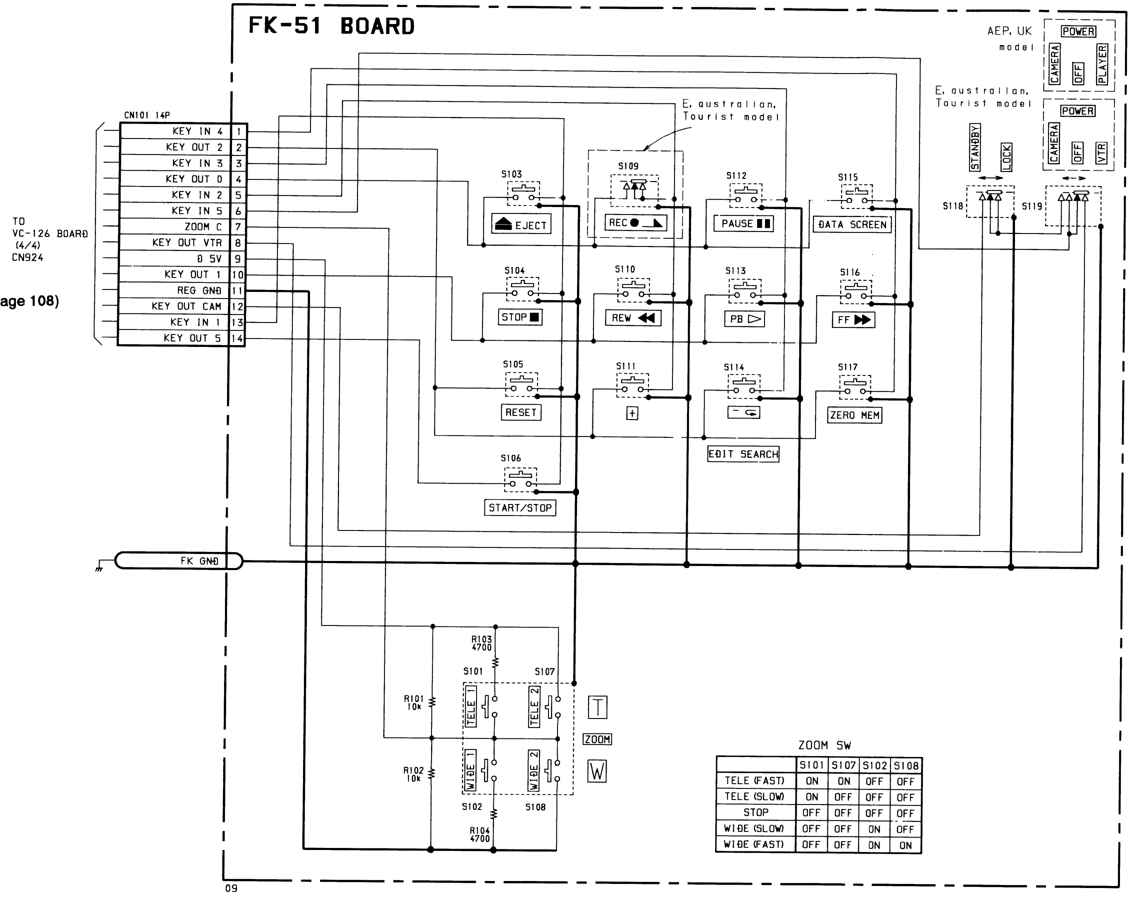
Q991	8-729-907-25	TRANSISTOR	PT4850F
Q992	8-729-907-25	TRANSISTOR	PT4850F

- **For printed wiring boards.**
- ● : Through hole is omitted.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

FK-51 (VIDEO FUNCTION SWITCH), RM-54 (REMOTE CONTROL RECEIVER) SCHEMATIC DIAGRAMS

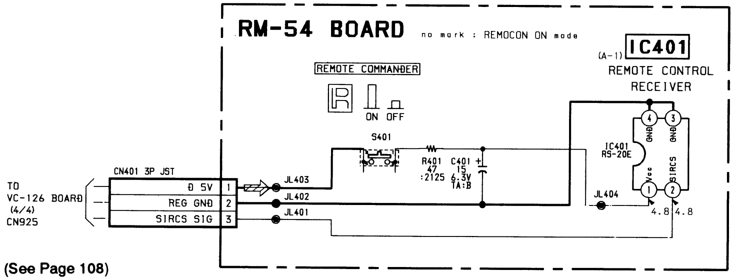
— Ref. No. RM-54 BOARD: 4000 series —


FK-51 BOARD
CN101 14P
KEY IN 4 1
KEY OUT 2 2
KEY IN 3 3
KEY OUT 0 4
KEY IN 2 5
KEY IN 5 6
ZOOM C 7
KEY OUT VTR 8
Ð 5V 9
KEY OUT 1 10
REG GNÐ 11
KEY OUT CAM 12
KEY IN 1 13
KEY OUT 5 14
TO
VC-126 BOARÐ
(4/4)
CN924
FK GNÐ
E, australian, Tourist model
S103
EJECT
S109
REC
S112
PAUSE
S115
ÐATA SCREEN
S104
STOP
S110
REW
S113
PB
S116
FF
S105
RESET
S111
S114
S117
ZERO MEM
EÐIT SEARCH
S106
START/STOP
AEP, UK model
POWER
CAMERA
OFF
PLAYER
E, australian, Tourist model
POWER
CAMERA
OFF
VTR
STANÐBY
LOCK
S118
S119
R103 4700
S101
S107
R101 10k
TELE 1
TELE 2
T
ZOOM
W
R102 10k
WIÐE 1
WIÐE 2
S102
S108
R104 4700
09

(See Page 108)

ZOOM SW

	S101	S107	S102	S108
TELE (FAST)	ON	ON	OFF	OFF
TELE (SLOW)	ON	OFF	OFF	OFF
STOP	OFF	OFF	OFF	OFF
WIÐE (SLOW)	OFF	OFF	ON	OFF
WIÐE (FAST)	OFF	OFF	ON	ON

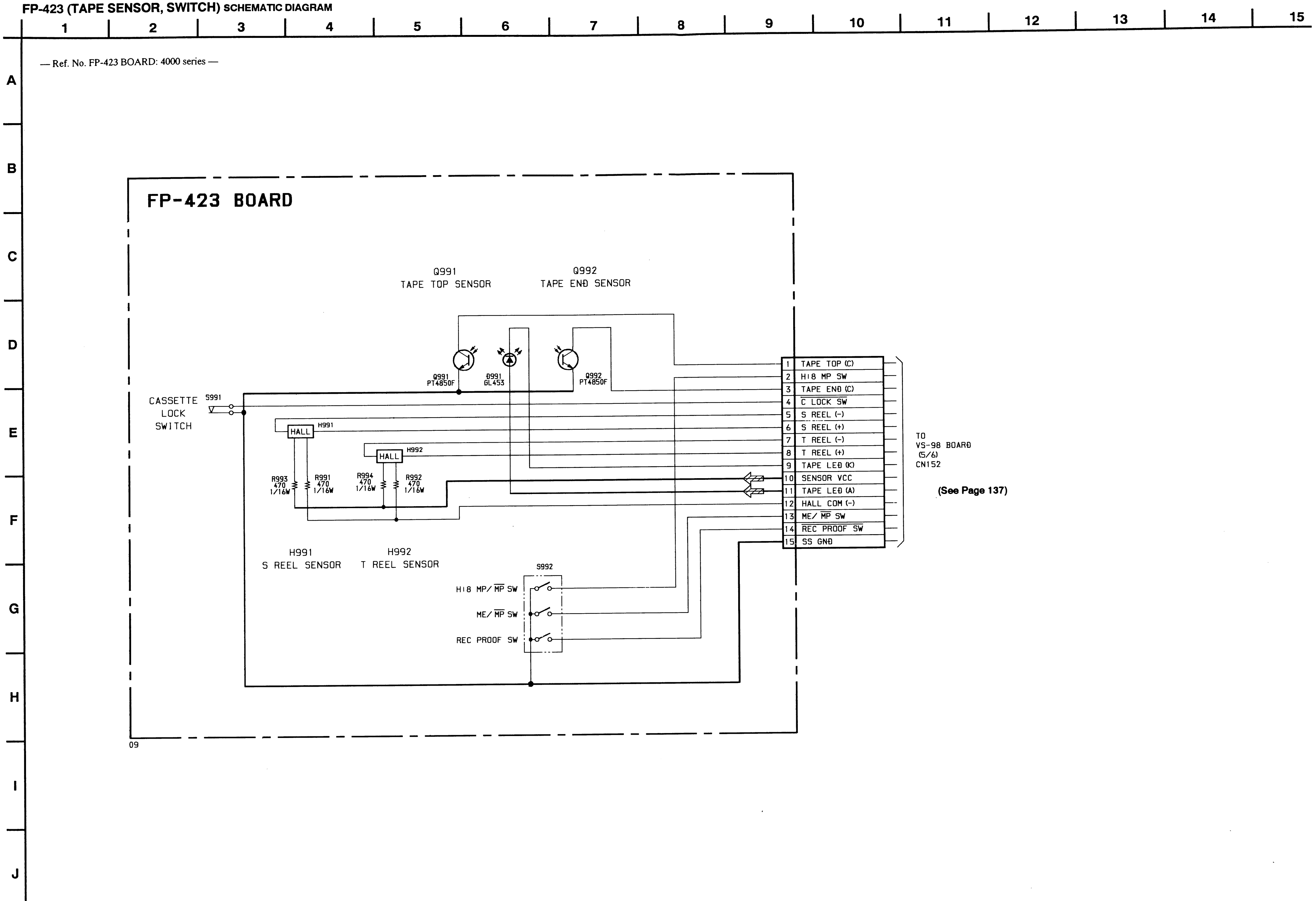

RM-54 BOARD
no mark : REMOCON ON mode
(A-1) IC401
REMOTE CONTROL RECEIVER
REMOTE COMMANÐER
ON OFF
S401
R401 47 :2125
C401 15 6.3V TA:B
IC401 RS-20E
GNÐ
GNÐ
Vcc
SIRCS
4.8
4.8
JL403
JL402
JL401
JL404
CN401 3P JST
Ð 5V 1
REG GNÐ 2
SIRCS SIG 3
TO
VC-126 BOARÐ
(4/4)
CN925

(See Page 108)

FUNCTION SWITCH FUNCTION SWITCH

FP-423 (TAPE SENSOR, SWITCH) SCHEMATIC DIAGRAM

— Ref. No. FP-423 BOARD: 4000 series —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A
B
C
D
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F
G
H
I
J
FP-423 BOARD
Q991
TAPE TOP SENSOR
Q992
TAPE END SENSOR
Q991
PT4850F
D991
GL453
Q992
PT4850F
CASSETTE
LOCK
SWITCH
S991
HALL
H991
HALL
H992
R993
470
1/16W
R991
470
1/16W
R994
470
1/16W
R992
470
1/16W
H991
S REEL SENSOR
H992
T REEL SENSOR
S992
H18 MP/ $\overline{\text{MP}}$ SW
ME/ $\overline{\text{MP}}$ SW
REC PROOF SW
1 TAPE TOP (C)
2 H18 MP SW
3 TAPE END (C)
4 $\overline{\text{C LOCK SW}}$
5 S REEL (-)
6 S REEL (+)
7 T REEL (-)
8 T REEL (+)
9 TAPE LED (K)
10 SENSOR VCC
11 TAPE LED (A)
12 HALL COM (-)
13 ME/ $\overline{\text{MP}}$ SW
14 $\overline{\text{REC PROOF SW}}$
15 SS GND
TO
VS-98 BOARD
(5/6)
CN152
09

(See Page 137)

RM-54 (REMOTE CONTROL RECEIVER) PRINTED WIRING BOARD

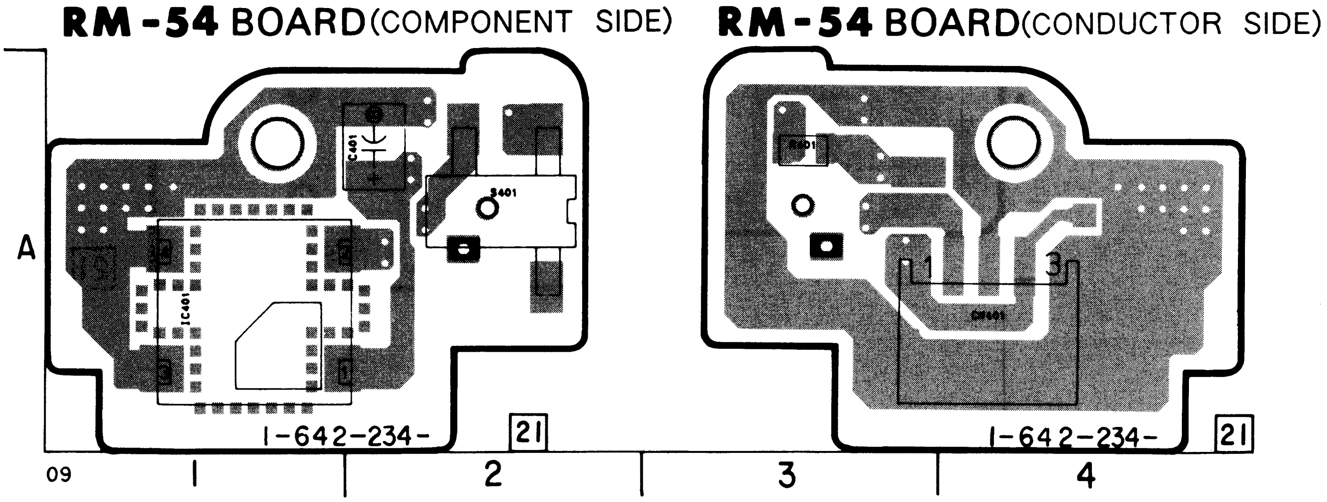
— Ref. No. RM-54 BOARD: 4000 series —

- FK-51 board is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

- **For printed wiring boards.**
- RM-54 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ● : Through hole is omitted.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.


RM-54 BOARD(COMPONENT SIDE)
RM-54 BOARD(CONDUCTOR SIDE)
C401
S401
IC401
1
2
3
1-642-234-
21
1-642-234-
21
A
09
1
2
3
4

〈 IC 〉

IC401 8-749-923-29 IC RS-20E-T

LJ-6 (REMOTE CONTROL JACK) PRINTED WIRING BOARD

— Ref. No. LJ-6 BOARD: 5000 series —

- CF-29 board is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

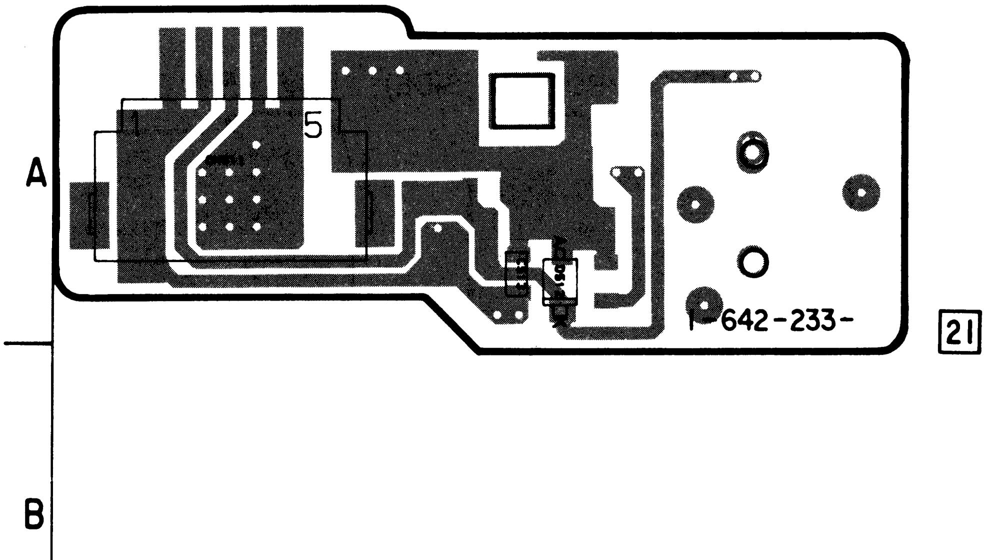
- **For printed wiring boards.**
- LJ-6 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ● : Through hole is omitted.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

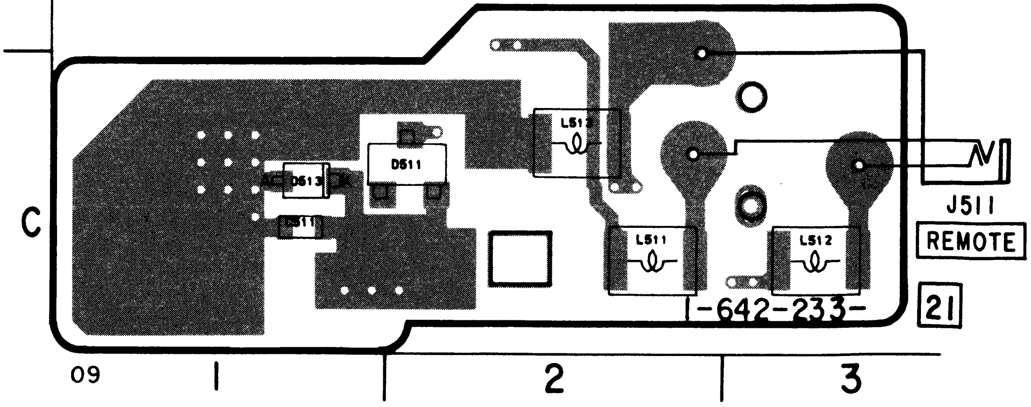
〈 DIODE 〉

D511	8-719-106-71	DIODE	RD12M-B2
D512	8-719-420-14	DIODE	MA8082-M
D513	8-719-404-46	DIODE	MA110

LJ-6 BOARD (COMPONENT SIDE)

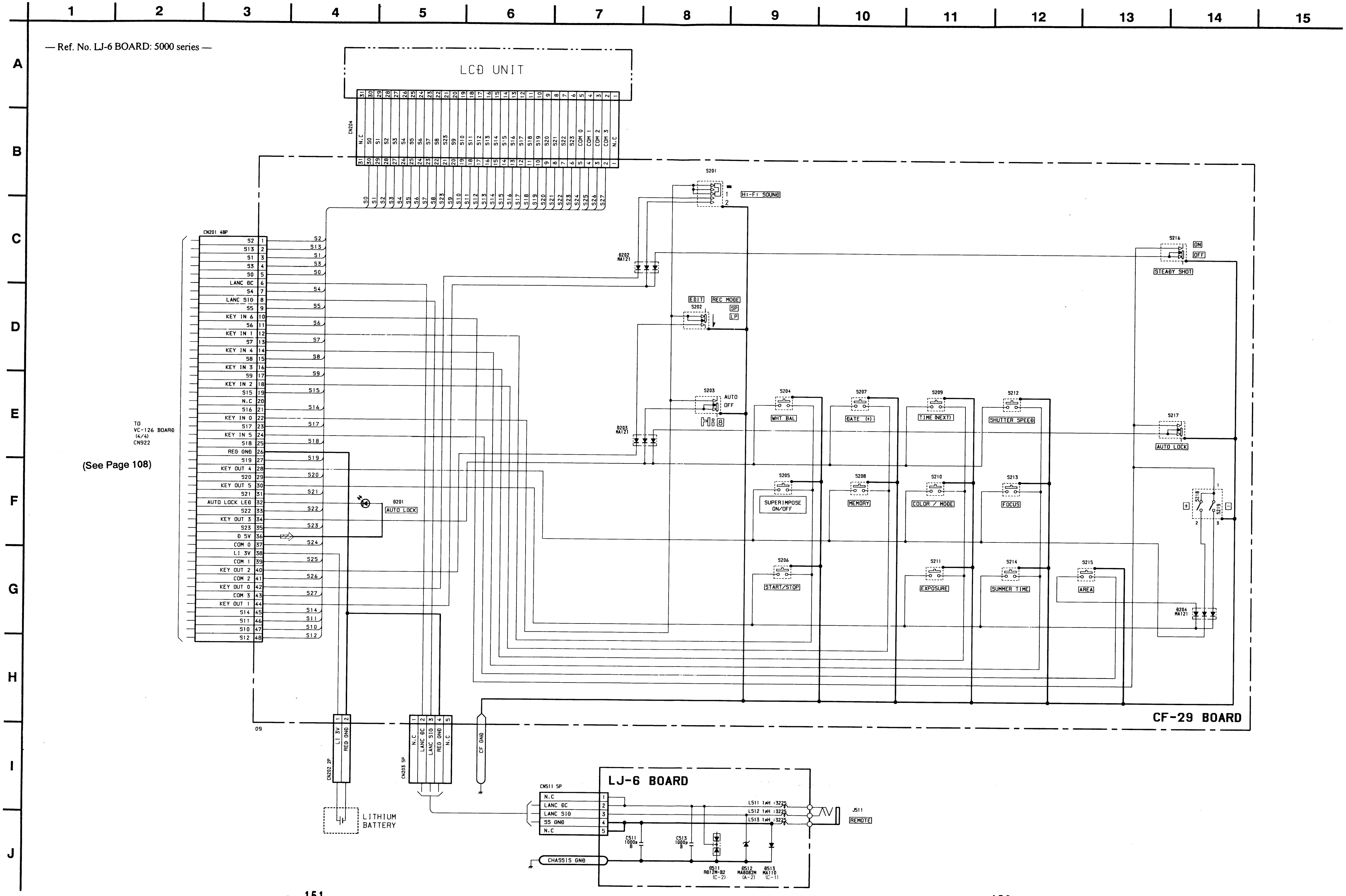


LJ-6 BOARD (CONDUCTOR SIDE)



CF-29 (CAMERA FUNCTION SWITCH), LJ-6 (REMOTE CONTROL JACK) SCHEMATIC DIAGRAMS

— Ref. No. LJ-6 BOARD: 5000 series —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C
D
E
F
G
H
I
J
LCD UNIT
CN204
N.C
S0
S1
S2
S3
S4
S5
S6
S7
S8
S23
S9
S10
S11
S12
S13
S14
S15
S16
S17
S18
S19
S20
S21
S22
S23
COM 0
COM 1
COM 2
COM 3
N.C
S24
S25
S26
S27
CN201 48P
S2 1
S13 2
S1 3
S3 4
S0 5
LANC DC 6
S4 7
LANC SIG 8
S5 9
KEY IN 6 10
S6 11
KEY IN 1 12
S7 13
KEY IN 4 14
S8 15
KEY IN 3 16
S9 17
KEY IN 2 18
S15 19
N.C 20
S16 21
KEY IN 0 22
S17 23
KEY IN 5 24
S18 25
REG GND 26
S19 27
KEY OUT 4 28
S20 29
KEY OUT 5 30
S21 31
AUTO LOCK LED 32
S22 33
KEY OUT 3 34
S23 35
D 5V 36
COM 0 37
LI 3V 38
COM 1 39
KEY OUT 2 40
COM 2 41
KEY OUT 0 42
COM 3 43
KEY OUT 1 44
S14 45
S11 46
S10 47
S12 48
TO
VC-126 BOARD
(4/4)
CN922
(See Page 108)
D201
AUTO LOCK
S201
HI-FI SOUND
D202
MA121
EDIT
S202
REC MODE
SP
LP
S203
AUTO
OFF
Hi8
D203
MA121
S204
WHT BAL
S205
SUPERIMPOSE ON/OFF
S206
START/STOP
S207
DATE (+)
S208
MEMORY
S209
TIME (NEXT)
S210
COLOR / MODE
S211
EXPOSURE
S212
SHUTTER SPEED
S213
FOCUS
S214
SUMMER TIME
S215
AREA
S216
ON
OFF
STEADY SHOT
S217
AUTO LOCK
S218
S219
+
−
D204
MA121
CF-29 BOARD
09
CN202 2P
LI 3V
REG GND
LITHIUM BATTERY
CN203 5P
N.C
LANC DC
LANC SIG
REG GND
N.C
CF GND
LJ-6 BOARD
CN511 5P
N.C
LANC DC
LANC SIG
SS GND
N.C
CHASSIS GND
C511 1000p B
C513 1000p B
D511 RD12M-B2 (C-2)
D512 MA8082M (A-2)
D513 MA110 (C-1)
L511 1mH :322S
L512 1mH :322S
L513 1mH :322S
J511
REMOTE

AU-143 (AUDIO), HJ-13 (HEADPHONE JACK) PRINTED WIRING BOARDS

— Ref. No. AU-143, HJ-13 BOARDS: 6000 series —

- **For printed wiring boards.**
- AU-143, HJ-13 boards are the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ● : Through hole is omitted.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

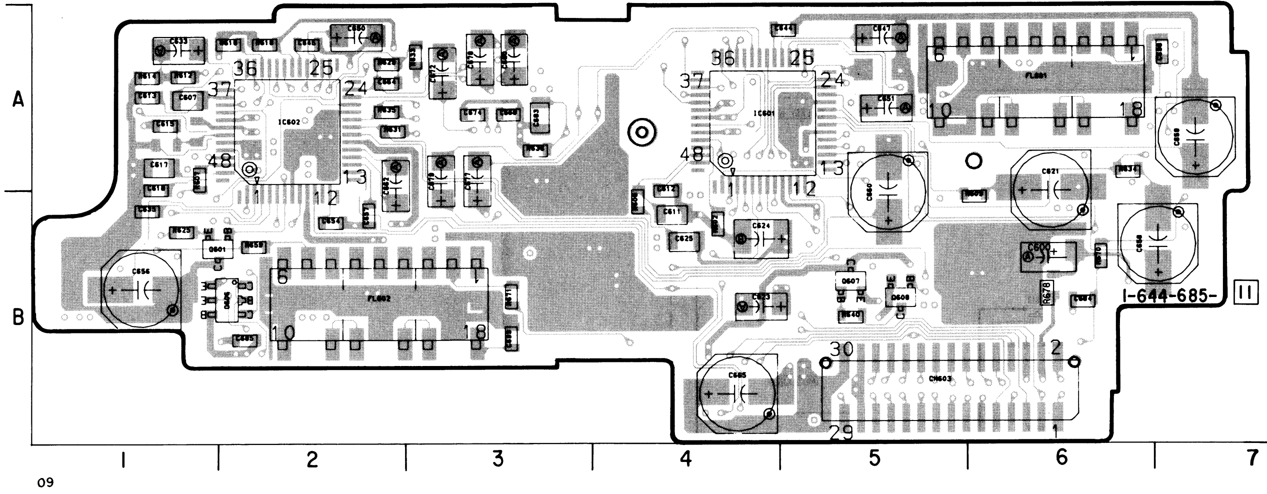
〈 IC 〉

IC601	8-759-823-19	IC	CXA1488R
IC602	8-759-823-19	IC	CXA1488R
IC603	8-759-823-21	IC	CXA1536Q
IC604	8-759-008-67	IC	MC14066BF

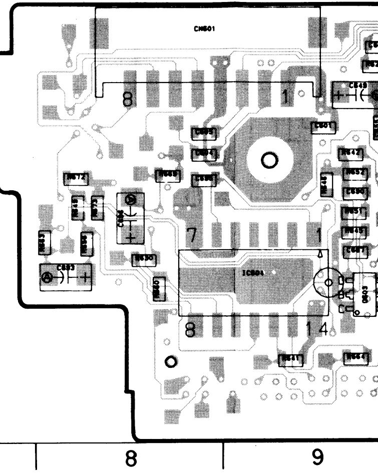
〈 TRANSISTOR 〉

Q601	8-729-905-23	TRANSISTOR	2SA1576-R
Q603	8-729-402-81	TRANSISTOR	XN4501
Q604	8-729-402-81	TRANSISTOR	XN4501
Q605	8-729-402-42	TRANSISTOR	UN5213
Q606	8-729-402-81	TRANSISTOR	XN4501
Q607	8-729-403-35	TRANSISTOR	UN5113
Q608	8-729-402-42	TRANSISTOR	UN5213

AU-143 BOARD (COMPONENT SIDE)


A
B
IC602
IC601
FL601
FL602
CN603
36
25
37
24
48
13
12
1
6
10
18
30
2
29
1-644-685-
11
1
2
3
4
5
6
09

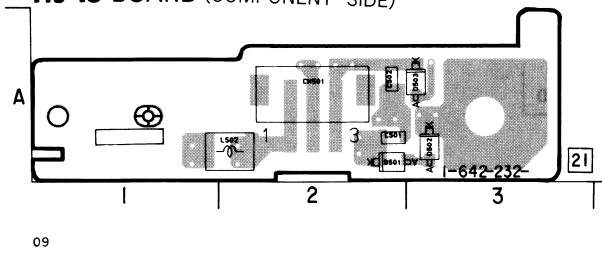
AU-143 BOARD (CONDUCTOR SIDE


CN601
IC604
8
1
7
14
7
8
9

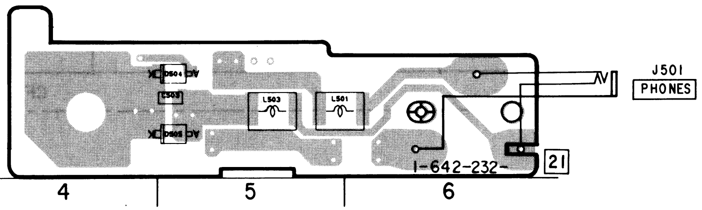
〈 DIODE 〉

D501	8-719-420-14	DIODE	MA8082-M
D502	8-719-420-14	DIODE	MA8082-M
D503	8-719-420-14	DIODE	MA8082-M
D504	8-719-420-14	DIODE	MA8082-M
D505	8-719-404-46	DIODE	MA110

HJ-13 BOARD (COMPONENT SIDE)


A
CN501
L502
L501
D501
D502
D503
1
3
1-642-232-
21
1
2
3
09

HJ-13 BOARD (CONDUCTOR SIDE)


D504
D505
L503
L501
1-642-232-
21
J501
PHONES
4
5
6

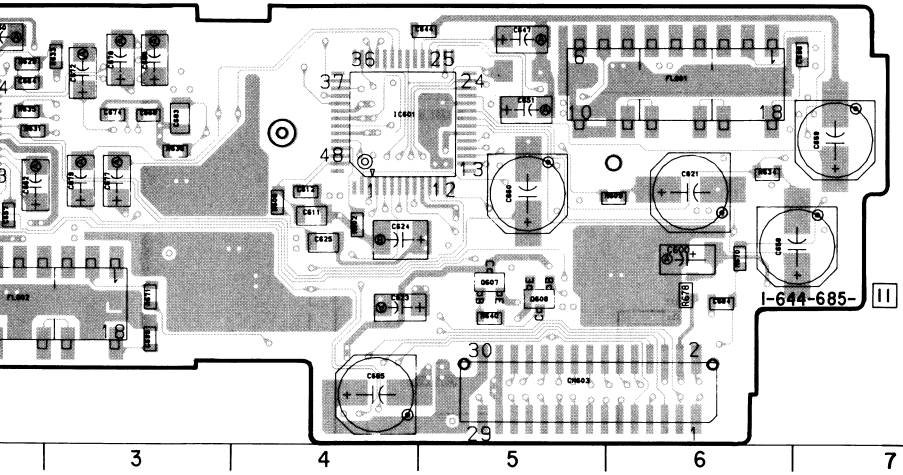
CK) PRINTED WIRING BOARDS

which has
omitted.

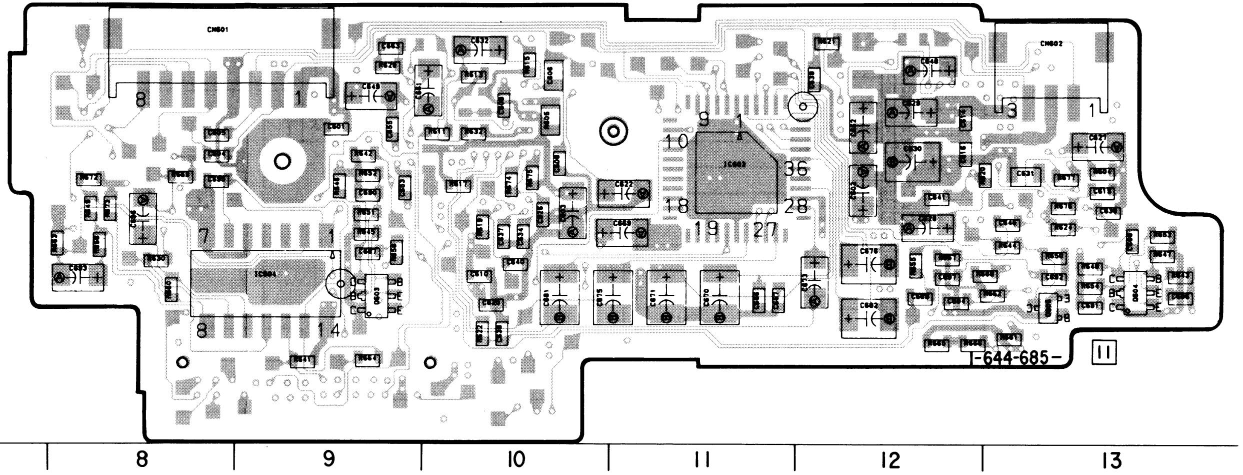
Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

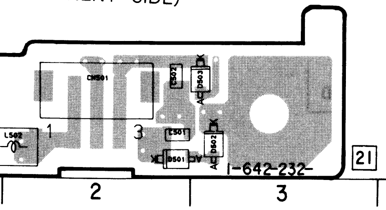
T SIDE)


IC601
FL601
FL602
CN603
1-644-685-
11
3
4
5
6
7

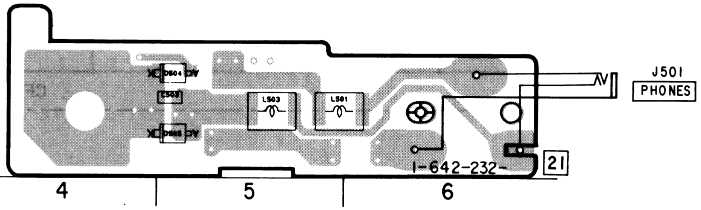
AU-143 BOARD (CONDUCTOR SIDE)


CN601
CN602
IC604
IC603
1-644-685-
11
8
9
10
11
12
13

COMPONENT SIDE)

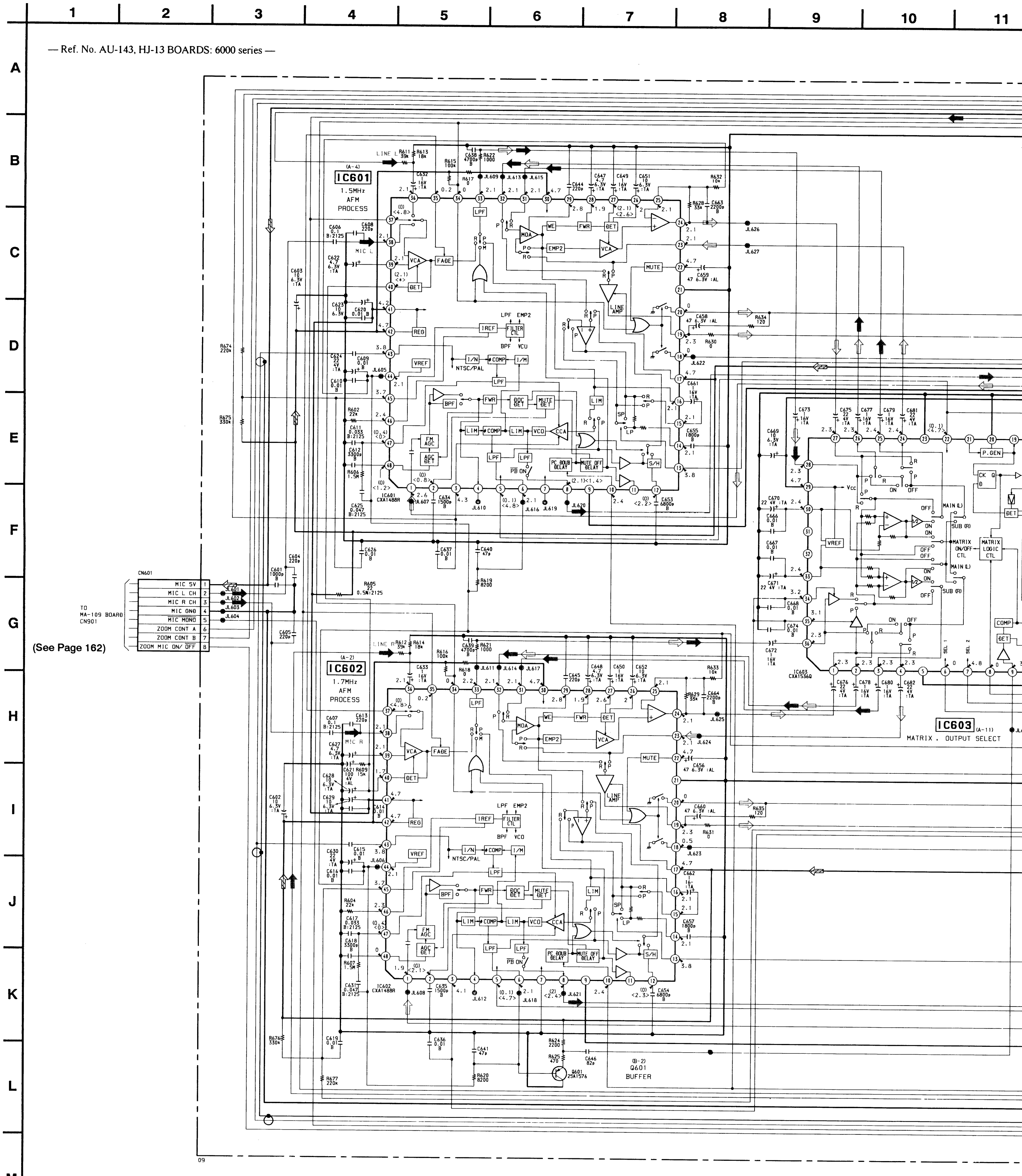

CN501
1-642-232-
21
2
3

HJ-13 BOARD (CONDUCTOR SIDE)


J501
PHONES
L503
L501
1-642-232-
21
4
5
6

AU-143 (AUDIO), HJ-13 (HEADPHONE JACK) SCHEMATIC DIAGRAMS

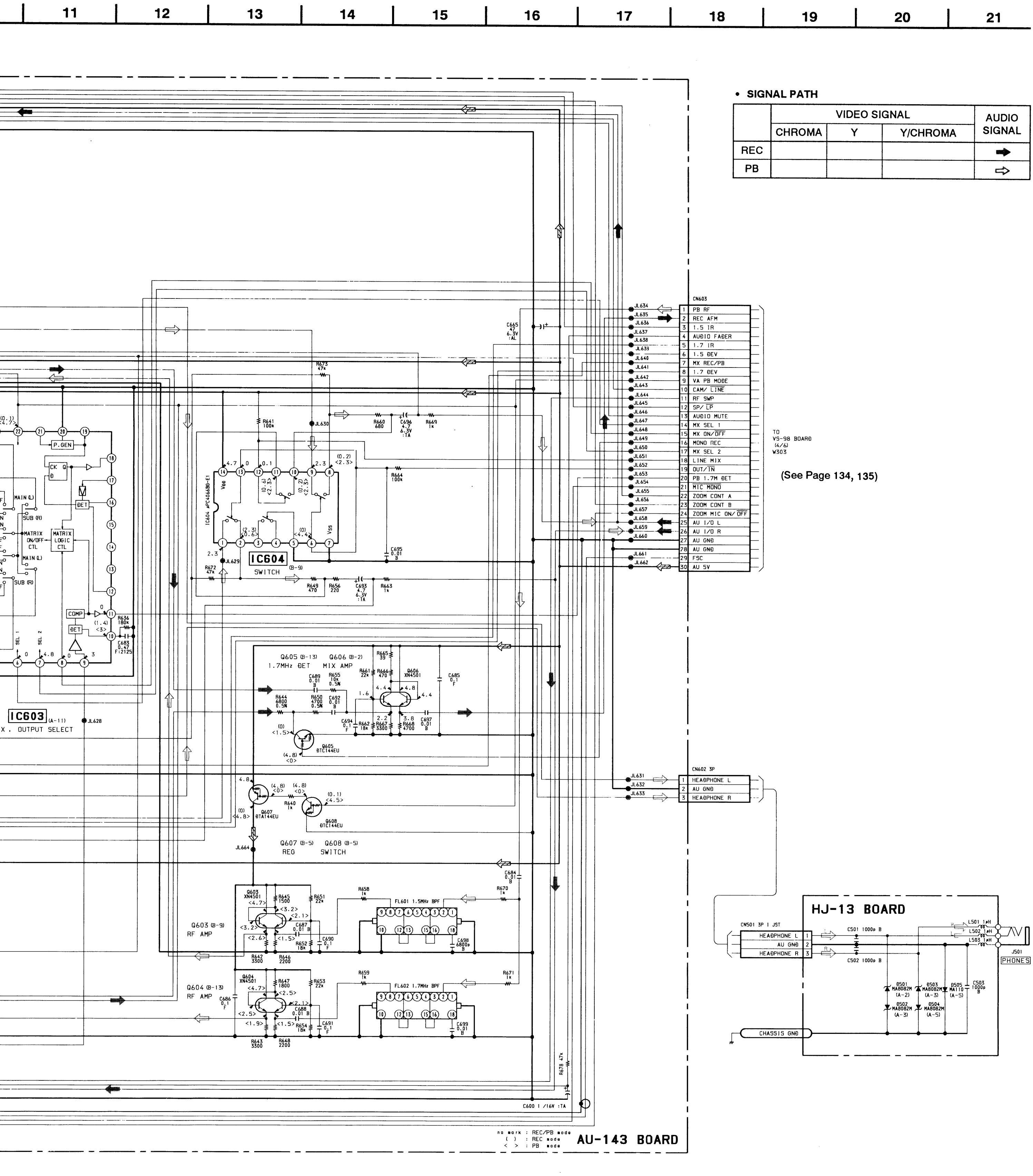
— Ref. No. AU-143, HJ-13 BOARDS: 6000 series —



1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
IC601
1.5MHz
AFM
PROCESS
IC601
CXA1488R
IC602
1.7MHz
AFM
PROCESS
IC602
CXA1488R
IC603
MATRIX . OUTPUT SELECT
IC603
CXA1536Q
CN601
MIC 5V
MIC L CH
MIC R CH
MIC GND
MIC MONO
ZOOM CONT A
ZOOM CONT B
ZOOM MIC ON/ OFF
TO
MA-109 BOARD
CN901
(See Page 162)
LINE L
LINE R
MIC L
MIC R
VCA
FADE
DET
REG
VREF
LPF
MOA
WE
FWR
EMP2
MUTE
LINE AMP
IREF
FILTER CTL
LPF EMP2
BPF VCO
I/N
COMP
I/M
NTSC/PAL
BPF
NOC DET
MUTE DET
LIM
VCO
CCA
FM AGC
AGC DET
PB ON
PC DOUB DELAY
MUTE OFF DELAY
S/H
SP
LP
P.GEN
MATRIX ON/OFF CTL
MATRIX LOGIC CTL
MAIN (L)
SUB (R)
ON
OFF
COMP
DET
SEL 1
SEL 2
Q601
2SA1576
BUFFER
09

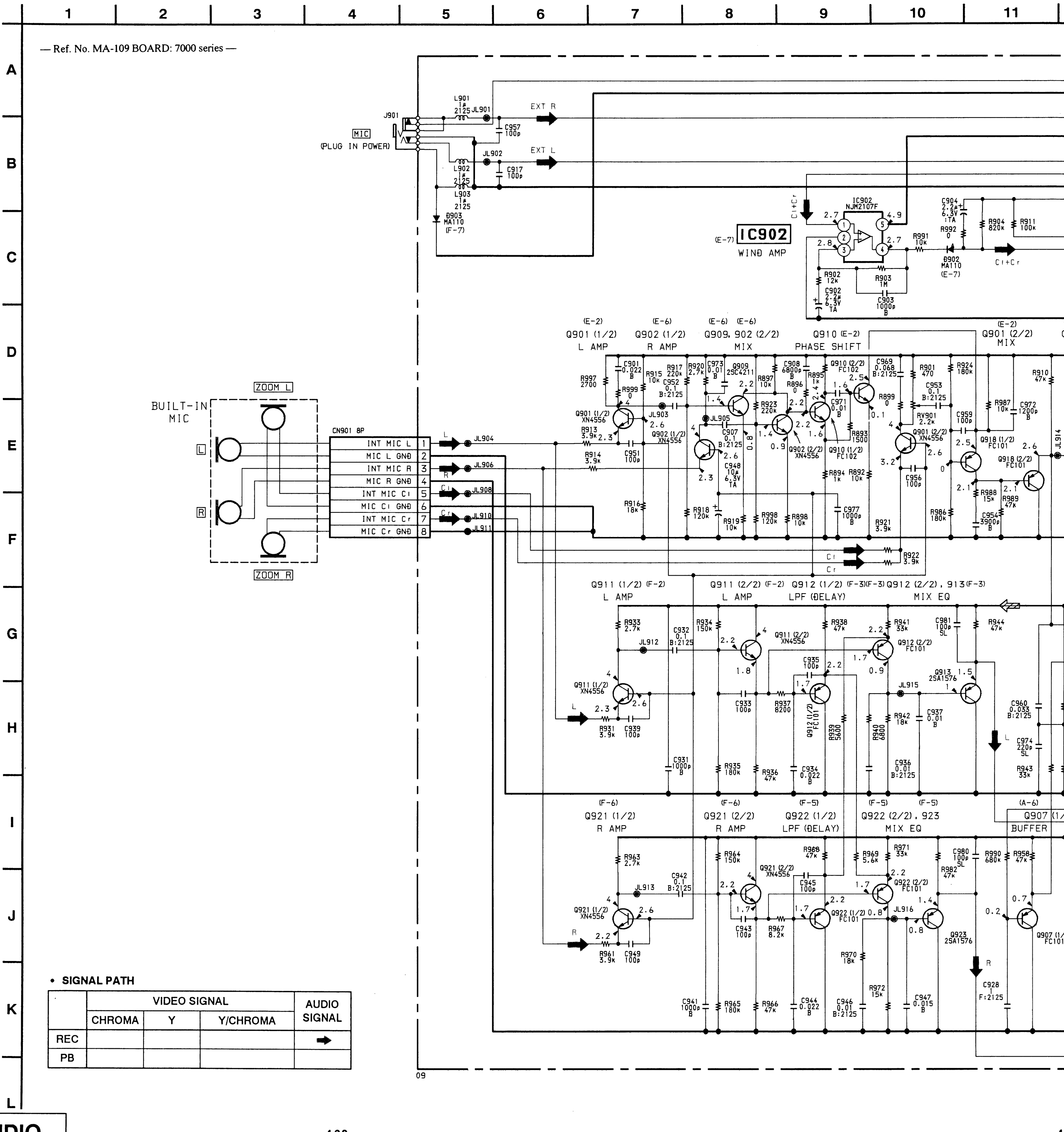
- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨


11
12
13
14
15
16
17
18
19
20
21
IC603 (A-11)
X . OUTPUT SELECT
P.GEN
MATRIX LOGIC CTL
MATRIX ON/OFF CTL
MAIN (L)
SUB (R)
COMP
DET
IC604 (B-9)
SWITCH
IC604 μPC4066BG-E1
Q605 (B-13) Q606 (B-2)
1.7MHz DET MIX AMP
Q607 (B-5) Q608 (B-5)
REG SWITCH
Q603 (B-9)
RF AMP
Q604 (B-13)
RF AMP
FL601 1.5MHz BPF
FL602 1.7MHz BPF
CN603
1 PB RF
2 REC AFM
3 1.5 IR
4 AUDIO FADER
5 1.7 IR
6 1.5 DEV
7 MX REC/PB
8 1.7 DEV
9 VA PB MODE
10 CAM/LINE
11 RF SWP
12 SP/LP
13 AUDIO MUTE
14 MX SEL 1
15 MX ON/OFF
16 MONO REC
17 MX SEL 2
18 LINE MIX
19 OUT/IN
20 PB 1.7M DET
21 MIC MONO
22 ZOOM CONT A
23 ZOOM CONT B
24 ZOOM MIC ON/OFF
25 AU I/O L
26 AU I/O R
27 AU GND
28 AU GND
29 FSC
30 AU 5V
TO VS-98 BOARD (4/6) W303
CN602 3P
1 HEADPHONE L
2 AU GND
3 HEADPHONE R
HJ-13 BOARD
CN501 3P I JST
HEADPHONE L
AU GND
HEADPHONE R
CHASSIS GND
J501 PHONES
C600 1 /16V :TA
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
AU-143 BOARD

(See Page 134, 135)

MA-109 (MIC AMPLIFIER) SCHEMATIC DIAGRAM

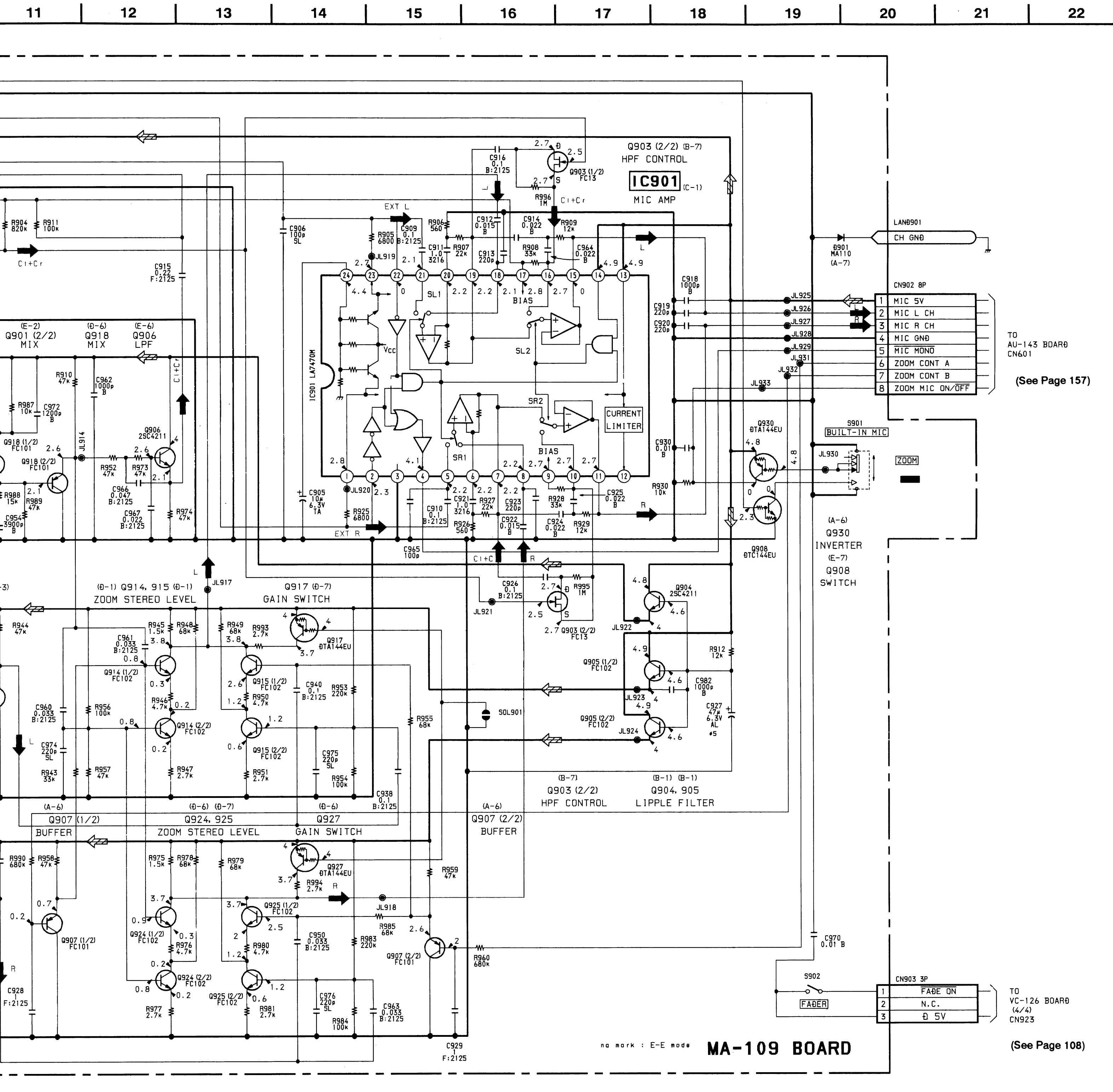


— Ref. No. MA-109 BOARD: 7000 series —

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
J901
MIC
(PLUG IN POWER)
L901
JL901
EXT R
C957 100p
JL902
EXT L
C917 100p
L902
L903
D903 MA110 (F-7)
IC902 NJM2107F
IC902
WIND AMP
C+Cr
D902 MA110 (E-7)
R902 12k
C902 2.2μ 6.3V TA
R903 1M
C903 1000p B
R991 10k
R904 820k
R911 100k
C904 2.2μ 6.3V TA
Q901 (1/2) L AMP
Q902 (1/2) R AMP
Q909, 902 (2/2) MIX
Q910 PHASE SHIFT
Q901 (2/2) MIX
BUILT-IN MIC
ZOOM L
ZOOM R
L
R
CN901 8P
INT MIC L
MIC L GND
INT MIC R
MIC R GND
INT MIC Cl
MIC Cl GND
INT MIC Cr
MIC Cr GND
JL904
JL906
JL908
JL910
JL911
Cl
Cr
R922 3.9k
Q911 (1/2) L AMP
Q911 (2/2) L AMP
Q912 (1/2) LPF (DELAY)
Q912 (2/2), 913 MIX EQ
JL912
JL915
Q913 2SA1576
Q921 (1/2) R AMP
Q921 (2/2) R AMP
Q922 (1/2) LPF (DELAY)
Q922 (2/2), 923 MIX EQ
Q907 BUFFER
JL913
JL916
Q923 2SA1576
C928 F:2125
09

- SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				

11
12
13
14
15
16
17
18
19
20
21
22
Q903 (2/2) (B-7)
HPF CONTROL
IC901 (C-1)
MIC AMP
IC901 LA7470M
CURRENT LIMITER
EXT L
EXT R
BIAS
SL1
SL2
SR1
SR2
LANB901
CH GND
D901 MA110 (A-7)
CN902 8P
1 MIC 5V
2 MIC L CH
3 MIC R CH
4 MIC GND
5 MIC MONO
6 ZOOM CONT A
7 ZOOM CONT B
8 ZOOM MIC ON/OFF
TO AU-143 BOARD CN601
(See Page 157)
S901 BUILT-IN MIC
ZOOM
(A-6) Q930 INVERTER
(E-7) Q908 SWITCH
(E-2) Q901 (2/2) MIX
(D-6) Q918 MIX
(E-6) Q906 LPF
(D-1) Q914, 915 (D-1) ZOOM STEREO LEVEL
Q917 (D-7) GAIN SWITCH
SOL901
(B-7) Q903 (2/2) HPF CONTROL
(B-1) (B-1) Q904, 905 LIPPLE FILTER
(A-6) Q907 (1/2) BUFFER
(D-6) (D-7) Q924, 925 ZOOM STEREO LEVEL
(D-6) Q927 GAIN SWITCH
(A-6) Q907 (2/2) BUFFER
S902 FADER
CN903 3P
1 FADE ON
2 N.C.
3 D 5V
TO VC-126 BOARD (4/4) CN923
(See Page 108)
no mark : E-E mode
MA-109 BOARD

VF-42 (VIEW FINDER) PRINTED WIRING BOARD

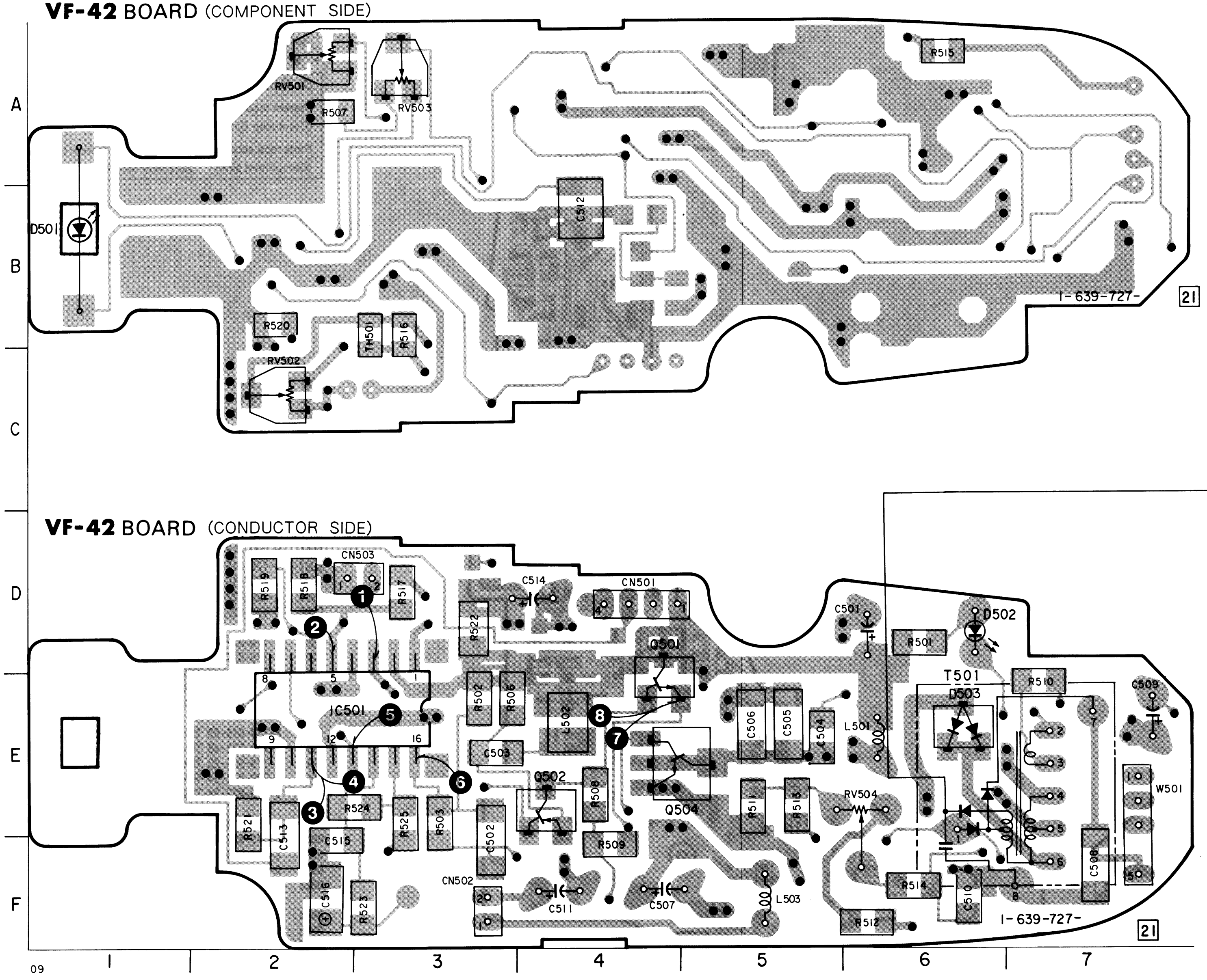
— Ref. No. VF-42 BOARD: 8000 series —

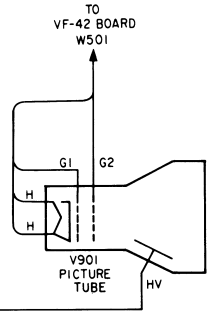
- **For printed wiring boards.**

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

VF-42 BOARD (COMPONENT SIDE)

VF-42 BOARD (CONDUCTOR SIDE)


A
B
C
D
E
F
1
2
3
4
5
6
7
09
RV501
RV503
R507
R515
D501
C512
R520
TH501
R516
RV502
1-639-727-
21
CN503
R519
R518
R517
C514
CN501
R522
C501
D502
R501
Q501
IC501
8
5
1
9
12
16
R502
R506
L502
T501
D503
R510
C509
C506
C505
C504
L501
C503
Q502
R508
Q504
R511
R513
RV504
W501
R521
C513
R524
R525
R503
C502
R509
C515
C516
R523
CN502
C511
C507
L503
R514
C510
R512
C508
1
2
3
4
5
6
7
8

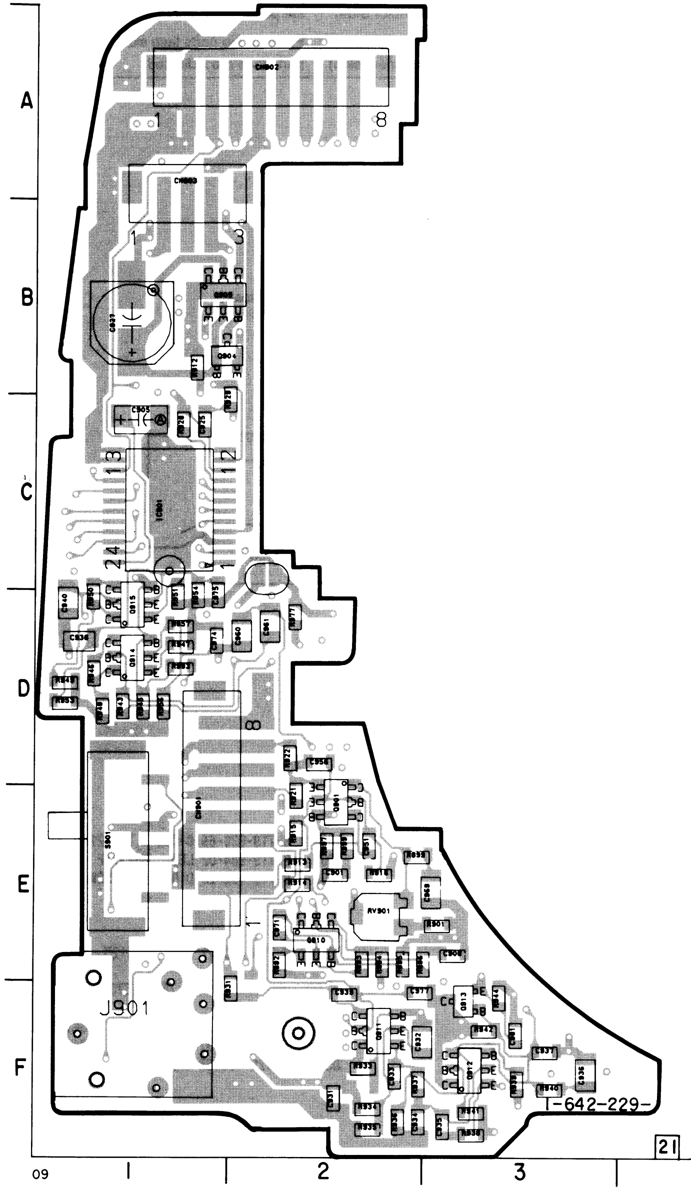

TO
VF-42 BOARD
W501
G1
G2
H
H
V901
PICTURE
TUBE
HV

		‹ DIODE ›	
D501	8-719-820-65	DIODE	TLS221
D502	8-719-984-02	LED	BR4371F
D503	8-719-400-20	DIODE	MA152WA
		‹ IC ›	
IC501	8-759-420-01	IC	AN2512S
		‹ TRANSISTOR ›	
Q501	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q502	8-729-216-31	TRANSISTOR	2SA1163-G
Q504	8-729-106-68	TRANSISTOR	2SD1615A-GP

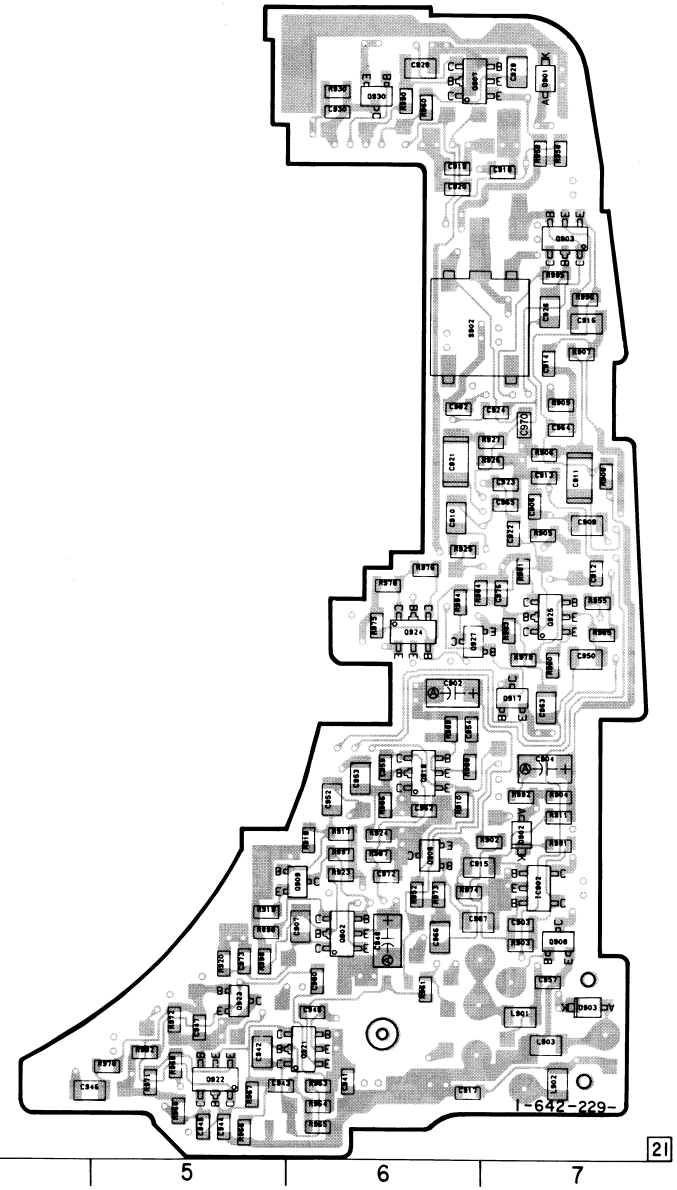
MA-109 (MIC AMPLIFIER) PRINTED WIRING BOARD

— Ref. No. MA-109 BOARD: 7000 series —

MA-109 BOARD (COMPONENT SIDE)



MA-109 BOARD (CONDUCTOR SIDE)



- **For printed wiring boards.**
- MA-109 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ● : Through hole is omitted.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

〈 DIODE 〉

D901	8-719-404-46	DIODE	MA110
D902	8-719-404-46	DIODE	MA110
D903	8-719-404-46	DIODE	MA110

〈 IC 〉

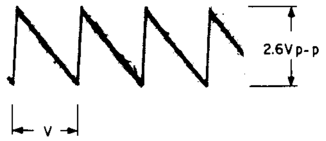
IC901	8-759-057-79	IC	LA7470V
IC902	8-759-710-79	IC	NJM2107F

〈 TRANSISTOR 〉

Q901	8-729-015-63	TRANSISTOR	XN4556-(TX)
Q902	8-729-015-63	TRANSISTOR	XN4556-(TX)
Q903	8-729-010-80	TRANSISTOR	FC13
Q904	8-729-822-97	TRANSISTOR	2SC4211-5. 6. 7
Q905	8-729-822-94	TRANSISTOR	FC102
Q906	8-729-822-97	TRANSISTOR	2SC4211-5. 6. 7
Q907	8-729-822-48	TRANSISTOR	FC101
Q908	8-729-402-42	TRANSISTOR	UN5213
Q909	8-729-822-97	TRANSISTOR	2SC4211-5. 6. 7
Q910	8-729-822-94	TRANSISTOR	FC102
Q911	8-729-015-63	TRANSISTOR	XN4556-(TX)
Q912	8-729-822-48	TRANSISTOR	FC101
Q913	8-729-905-23	TRANSISTOR	2SA1576-R
Q914	8-729-822-94	TRANSISTOR	FC102
Q915	8-729-822-94	TRANSISTOR	FC102
Q917	8-729-403-35	TRANSISTOR	UN5113
Q918	8-729-822-48	TRANSISTOR	FC101
Q921	8-729-015-63	TRANSISTOR	XN4556-(TX)
Q922	8-729-822-48	TRANSISTOR	FC101
Q923	8-729-905-23	TRANSISTOR	2SA1576-R
Q924	8-729-822-94	TRANSISTOR	FC102
Q925	8-729-822-94	TRANSISTOR	FC102
Q927	8-729-403-35	TRANSISTOR	UN5113
Q930	8-729-403-35	TRANSISTOR	UN5113

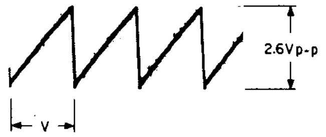
VF-42P BOARD

❶



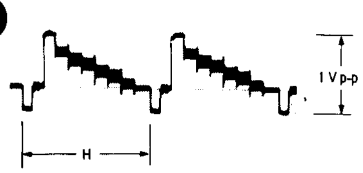
IC501 ③ REC/PB

❷



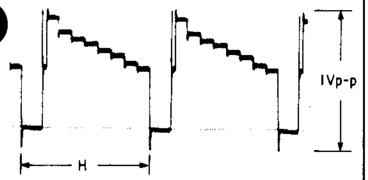
IC501 ⑤ REC/PB

❸



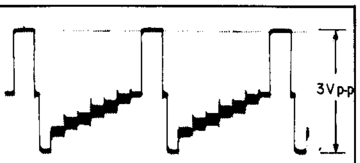
IC501 ⑪ REC

❹



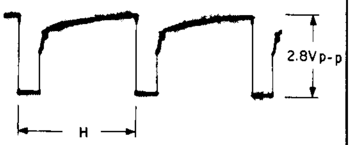
IC501 ⑪ PB

❺



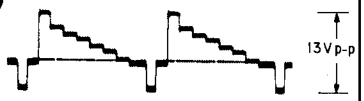
IC501 ⑬ REC/PB

❻



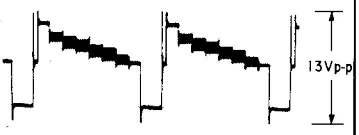
IC501 ⑯ REC/PB

❼



Q501 Ⓔ REC

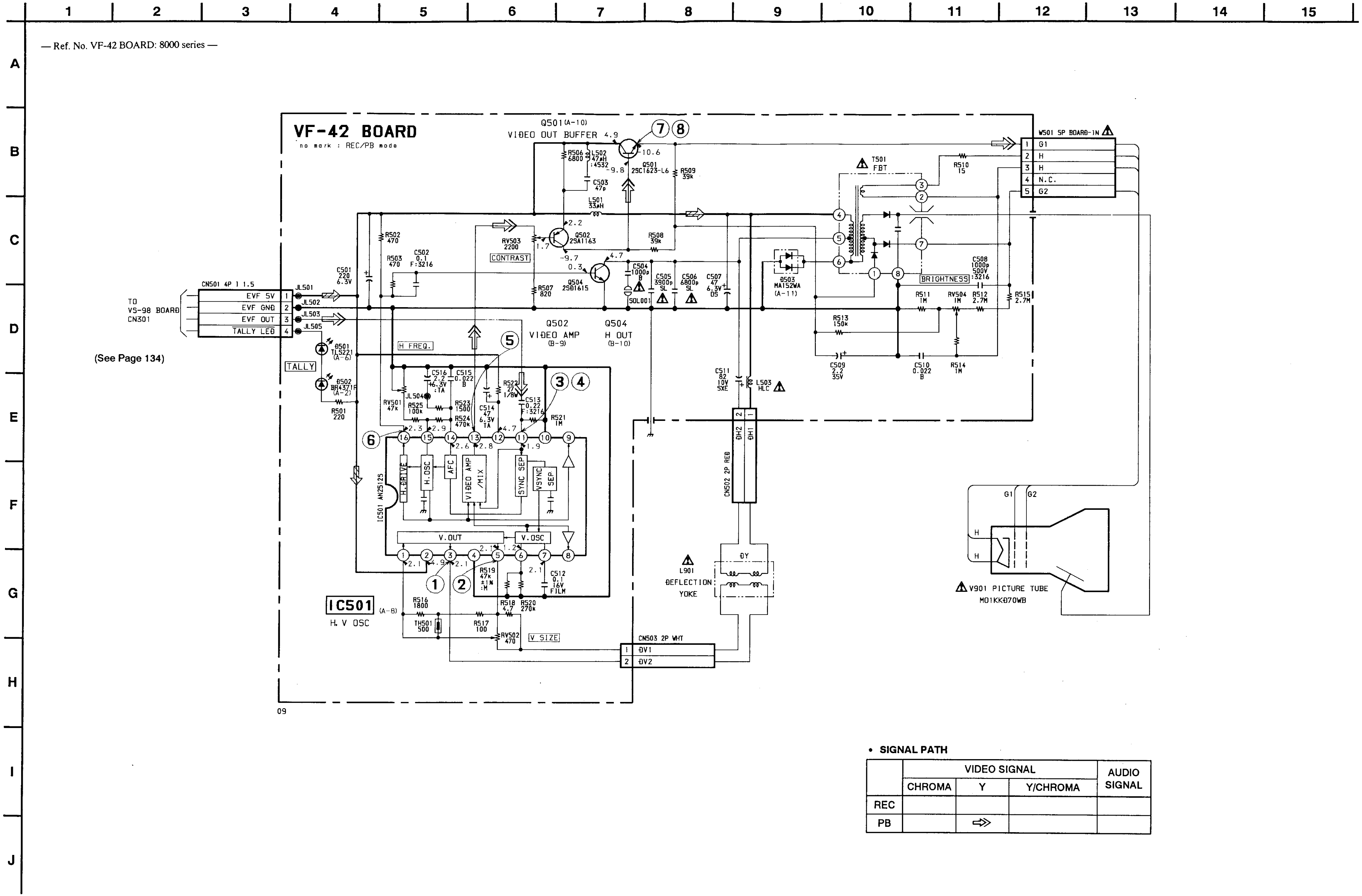
❽



Q501 Ⓔ PB

VF-42 (VIEW FINDER) SCHEMATIC DIAGRAM

— Ref. No. VF-42 BOARD: 8000 series —


1
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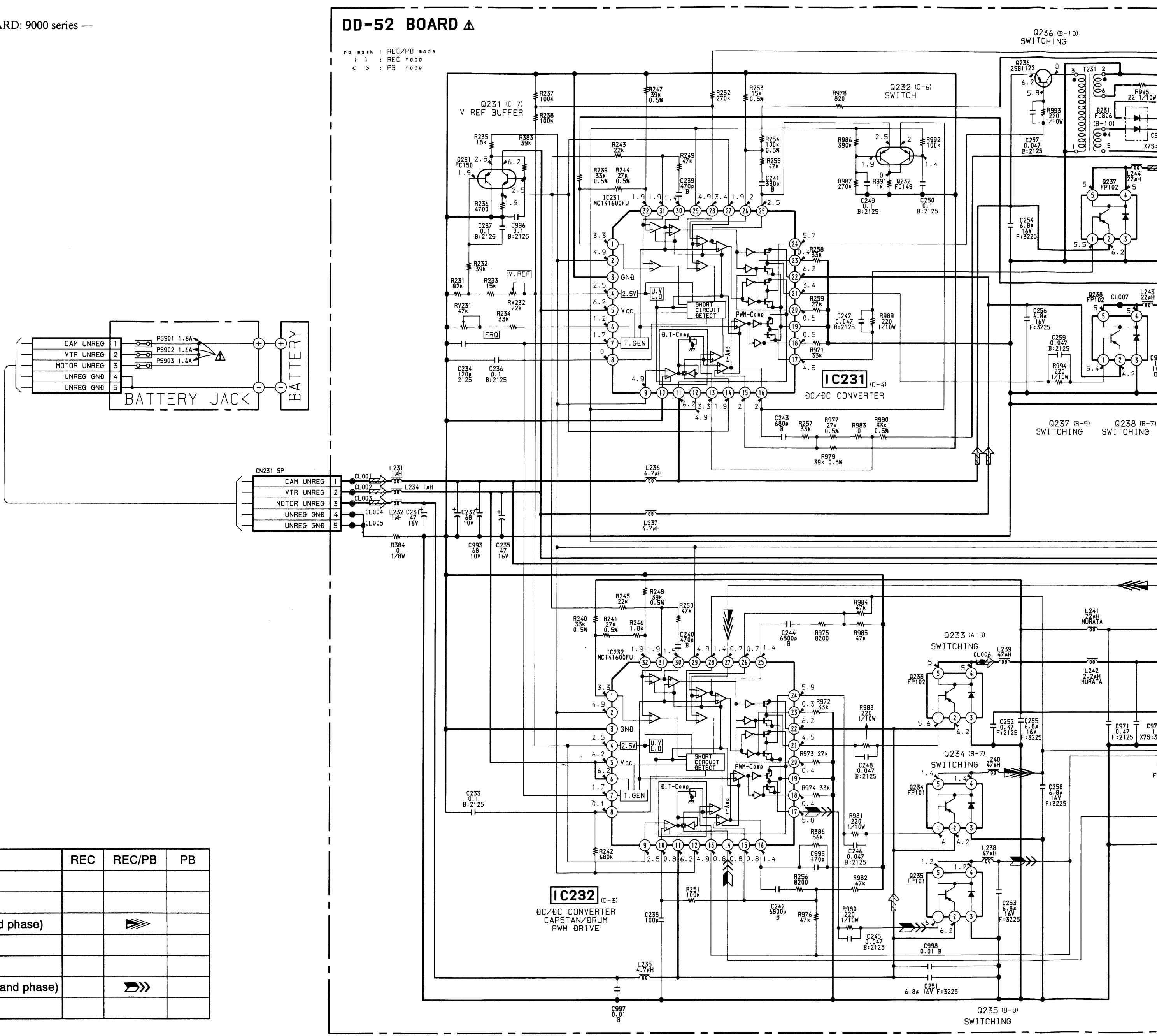
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
VF-42 BOARD
no mark : REC/PB mode
Q501 (A-10)
VIDEO OUT BUFFER 4.9
⑦⑧
R506 6800
L502 47μH :4532
C503 47p
L501 33μH
Q501 2SC1623-L6
R509 39k
-10.6
-9.8
T501 FBT
R510 15
W501 5P BOARD-IN
1 G1
2 H
3 H
4 N.C.
5 G2
R502 470
R503 470
C502 0.1 F:3216
C501 220 6.3V
RV503 2200
CONTRAST
Q502 2SA1163
2.2
1.7
-9.7
0.3
Q504 2SD1615
4.7
R508 39k
R507 820
C504 1000p B
SOL001
C505 3900p SL
C506 6800p SL
C507 47 6.3V 05
D503 MA152WA (A-11)
C508 1000p 500V :3216
BRIGHTNESS
R511 1M
RV504 1M
R512 2.7M
R515 2.7M
R513 150k
C509 2.2 35V
C510 0.022 B
R514 1M
CN501 4P 1 1.5
EVF 5V
EVF GND
EVF OUT
TALLY LED
TO VS-98 BOARD CN301
(See Page 134)
JL501
JL502
JL503
JL505
D501 TLS221 (A-6)
D502 BR4371F (A-2)
TALLY
R501 220
Q502 VIDEO AMP (B-9)
Q504 H OUT (B-10)
⑤
H FREQ.
C516 2.2 6.3V :TA
C515 0.022 B
R522 27 1/8W
C513 0.22 F:3216
③④
JL504
RV501 47k
R525 100k
R523 1500
R524 470k
C514 47 6.3V TA
R521 1M
⑥
2.3
2.9
2.6
2.8
4.7
1.9
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
VSYNC SEP
IC501 AN2512S
V.OUT
V.OSC
2.1
4.9
2.1
2.1
1.2
2.1
①
②
R519 47k ±1% :M
C512 0.1 16V FILM
R518 4.7
R520 270k
IC501 (A-8)
H. V OSC
R516 1800
TH501 500
R517 100
RV502 470
V SIZE
CN503 2P WHT
1 DV1
2 DV2
C511 82 10V SXE
L503 HLC
CN502 2P RED
DH2
DH1
L901 DEFLECTION YOKE
DY
G1
G2
H
H
V901 PICTURE TUBE M01KKD70WB
09

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB		⇨		

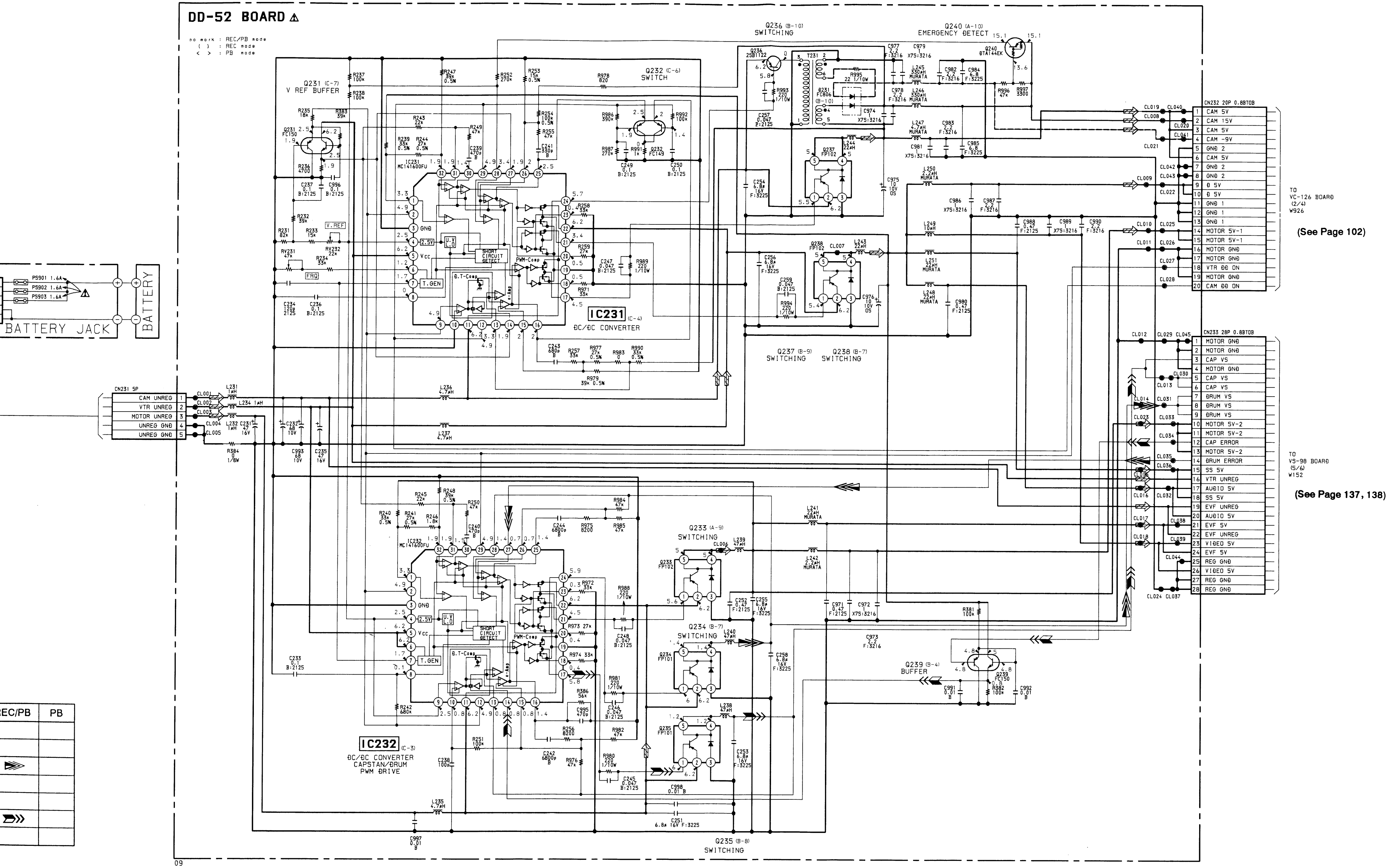
DD-52 (DC-DC CONVERTER) SCHEMATIC DIAGRAM

— Ref. No. DD-52 BOARD: 9000 series —


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
DD-52 BOARD ⚠
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
BATTERY JACK
BATTERY
CAM UNREG
VTR UNREG
MOTOR UNREG
UNREG GND
UNREG GND
PS901 1.6A
PS902 1.6A
PS903 1.6A
CN231 5P
CL001
CL002
CL003
CL004
CL005
L231 1μH
L234 1μH
L232 1μH
C231 47 16V
C232 68 10V
C993 68 10V
C235 47 16V
R384 0 1/8W
L236 4.7μH
L237 4.7μH
Q231 (C-7) V REF BUFFER
Q231 FC150
R235 18k
R383 39k
R236 4700
R237 100k
R238 100k
C237 0.1 B:2125
C996 0.1 B:2125
R232 39k
R231 82k
R233 15k
V.REF
RV231 47k
RV232 22k
R234 33k
FRQ
C234 120p 2125
C236 0.1 B:2125
R247 39k 0.5%
R252 270k
R253 15k 0.5%
R243 22k
R249 47k
R239 33k 0.5%
R244 27k 0.5%
C239 470p B
IC231 MC141600FU
R254 100k 0.5%
R255 47k
C241 330p B
GND
Vcc
2.5V
U.V L.O
SHORT CIRCUIT DETECT
T.GEN
D.T-Comp
PWM-Comp
ε-Amp
IC231 (C-4)
DC/DC CONVERTER
R258 33k
R259 27k
R971 33k
C247 0.047 B:2125
R989 220 1/10W
C243 680p B
R257 33k
R977 27k 0.5%
R983 0
R990 33k 0.5%
R979 39k 0.5%
R978 820
Q232 (C-6) SWITCH
R986 390k
R992 100k
R987 270k
R991 1k
Q232 FC149
C249 0.1 B:2125
C250 0.1 B:2125
Q236 (B-10) SWITCHING
Q236 2SB1122
R993 220 1/10W
C257 0.047 B:2125
T231
R995 22 1/10W
D231 FC806 (B-10)
X7S
C254 6.8μ 16V F:3225
Q237 FP102
L244 22μH
Q238 FP102
CL007
L243 22μH
C256 6.8μ 16V F:3225
C259 0.047 B:2125
R994 220 1/10W
Q237 (B-9) SWITCHING
Q238 (B-7) SWITCHING
R245 22k
R248 39k 0.5%
R250 47k
R240 33k 0.5%
R241 27k 0.5%
R246 1.8k
C240 470p B
IC232 MC141600FU
C244 6800p B
R975 8200
R984 47k
R985 47k
R972 33k
R973 27k
R974 33k
R988 220 1/10W
C248 0.047 B:2125
R981 220 1/10W
R386 56k
C995 470p B
C246 0.047 B:2125
R256 8200
R982 47k
R251 100k
C242 6800p B
R976 47k
R980 220 1/10W
C245 0.047 B:2125
R242 680k
C233 0.1 B:2125
C238 100p
IC232 (C-3)
DC/DC CONVERTER CAPSTAN/DRUM PWM DRIVE
L235 4.7μH
C997 0.01 B
Q233 (A-9) SWITCHING
Q233 FP102
CL006
L239 47μH
C252 0.47 F:2125
C255 6.8μ 16V F:3225
Q234 (B-7) SWITCHING
Q234 FP101
L240 47μH
C258 6.8μ 16V F:3225
Q235 FP101
L238 47μH
C253 6.8μ 16V F:3225
C998 0.01 B
C251 6.8μ 16V F:3225
Q235 (B-8) SWITCHING
L241 22μH MURATA
L242 2.2μH MURATA
C971 0.47 F:2125
X7S
09

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)		⋙	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		⊐»	
Ref. signal			


3
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14
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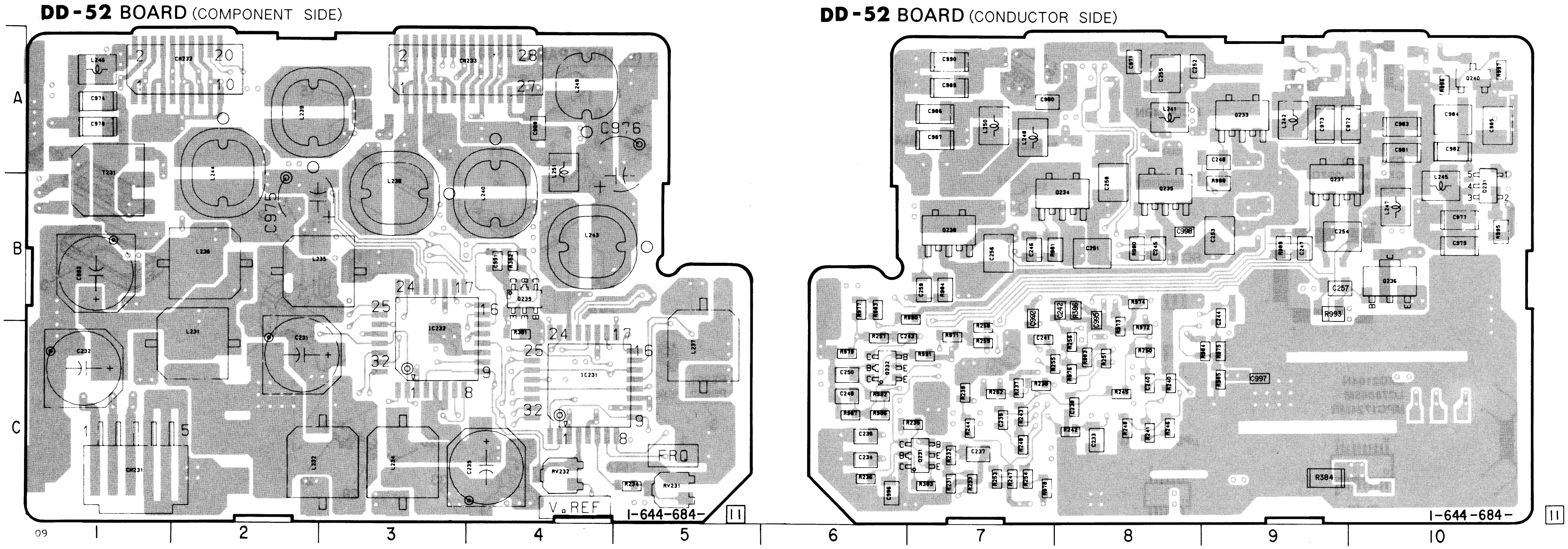
16
17
18
19
DD-52 BOARD ⚠
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
Q231 (C-7) V REF BUFFER
Q232 (C-6) SWITCH
Q236 (B-10) SWITCHING
Q240 (A-10) EMERGENCY DETECT
Q237 (B-9) SWITCHING
Q238 (B-7) SWITCHING
Q233 (A-9) SWITCHING
Q234 (B-7) SWITCHING
Q235 (B-8) SWITCHING
Q239 (B-4) BUFFER
IC231 (C-4) DC/DC CONVERTER
IC231 MC141600FU
IC232 (C-3) DC/DC CONVERTER CAPSTAN/DRUM PWM DRIVE
IC232 MC141600FU
SHORT CIRCUIT DETECT
PWM-Comp
D.T-Comp
T.GEN
U.V L.O
2.5V
V.REF
FRQ
PS901 1.6A
PS902 1.6A
PS903 1.6A
BATTERY JACK
BATTERY
CN231 5P
1 CAM UNREG
2 VTR UNREG
3 MOTOR UNREG
4 UNREG GND
5 UNREG GND
CN232 20P 0.8BTOB
1 CAM 5V
2 CAM 15V
3 CAM 5V
4 CAM -9V
5 GND 2
6 CAM 5V
7 GND 2
8 GND 2
9 D 5V
10 D 5V
11 GND 1
12 GND 1
13 GND 1
14 MOTOR 5V-1
15 MOTOR 5V-1
16 MOTOR GND
17 MOTOR GND
18 VTR DD ON
19 MOTOR GND
20 CAM DD ON
TO VC-126 BOARD (2/4) W926
(See Page 102)
CN233 28P 0.8BTOB
1 MOTOR GND
2 MOTOR GND
3 CAP VS
4 MOTOR GND
5 CAP VS
6 CAP VS
7 DRUM VS
8 DRUM VS
9 DRUM VS
10 MOTOR 5V-2
11 MOTOR 5V-2
12 CAP ERROR
13 MOTOR 5V-2
14 DRUM ERROR
15 SS 5V
16 VTR UNREG
17 AUDIO 5V
18 SS 5V
19 EVF UNREG
20 AUDIO 5V
21 EVF 5V
22 EVF UNREG
23 VIDEO 5V
24 EVF 5V
25 REG GND
26 VIDEO 5V
27 REG GND
28 REG GND
TO VS-98 BOARD (5/6) W152
(See Page 137, 138)
09

EC/PB	PB
⫸	
»	

DD-52 (DC-DC CONVERTER) PRINTED WIRING BOARD

— Ref. No. DD-52 BOARD: 9000 series —


DD-52 BOARD (COMPONENT SIDE)

DD-52 BOARD (CONDUCTOR SIDE)

A
B
C
1
2
3
4
5
6
7
8
9
10
CN232
CN233
CN231
IC231
IC232
L236
L238
L239
L240
L243
L244
L246
L249
L231
L235
T231
C975
C976
C231
C232
C239
C974
C978
Q239
RV231
RV232
R234
FRQ
V.REF
Q231
Q232
Q233
Q234
Q235
Q236
Q237
Q238
Q240
D231
R384
C997
C996
1-644-684-
11
09

- **For printed wiring boards.**
- DD-52 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ● : Through hole is omitted.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

〈 DIODE 〉

D231	8-719-989-33	DIODE	FC806

〈 IC 〉

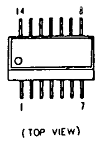
IC231	8-759-035-98	IC	MC141600FU
IC232	8-759-035-98	IC	MC141600FU

〈 TRANSISTOR 〉

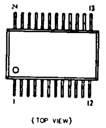
Q231	8-729-823-93	TRANSISTOR	FC150
Q232	8-729-823-95	TRANSISTOR	FC149
Q233	8-729-823-84	TRANSISTOR	FP102
Q234	8-729-823-82	TRANSISTOR	FP101
Q235	8-729-823-82	TRANSISTOR	FP101
Q236	8-729-804-41	TRANSISTOR	2SB1122-S
Q237	8-729-823-84	TRANSISTOR	FP102
Q238	8-729-823-84	TRANSISTOR	FP102
Q239	8-729-823-93	TRANSISTOR	FC150
Q240	8-729-901-06	TRANSISTOR	DTA144EK

4-3. SEMICONDUCTORS

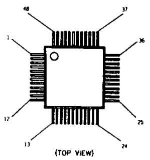
AN2512S


14
8
1
7
(TOP VIEW)

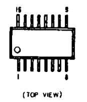
CXA1203N
LA7470V


24
13
1
12
(TOP VIEW)

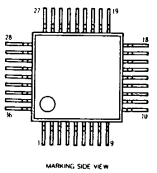
CXA1208R
CXA1481R
MCD002AR


48
37
1
36
12
25
13
24
(TOP VIEW)

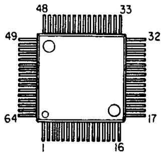
CXA1448N
CXA1452
CXL1506M
MPC1727VMER


16
9
1
8
(TOP VIEW)

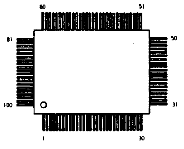
CXA1536Q
LB8110M


27
19
28
18
36
10
1
9
MARKING SIDE VIEW

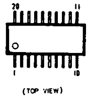
CXD1256R


48
33
49
32
64
17
1
16

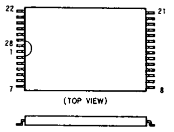
CXD2100Q
CXP80624-297Q
CXP80624-411Q


80
51
81
50
100
31
1
30

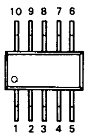
CXD2104N
LC78865M
MPC1724MR


20
11
1
10
(TOP VIEW)

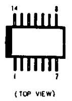
CXK5864BTM-12LL


22
21
28
1
7
8
(TOP VIEW)

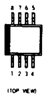
LB1830M


10 9 8 7 6
1 2 3 4 5

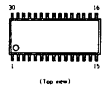
LM324DR


14
8
1
7
(TOP VIEW)

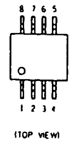
LM358D


8 7 6 5
1 2 3 4
(TOP VIEW)

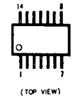
MCD004BN


30
16
1
15
(Top view)

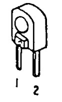
RC3414M


8 7 6 5
1 2 3 4
(TOP VIEW)

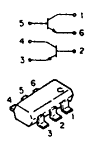
μPD4069UBG


14
8
1
7
(TOP VIEW)

PT4850F



XN4113
XN4213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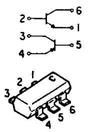
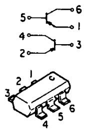
1
6
4
3
2
6
5
4
1
2
3

XN4601


6
2
1
3
5
4
2
1
3
6
4
5

XN6401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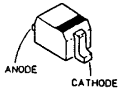
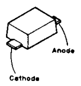
6
4
1
2
3
2
1
3
6
4
5

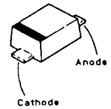
MA110


ANODE
CATHODE

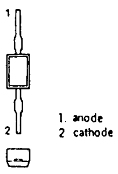
MA728


Anode
Cathode

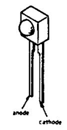
MA8082-M


Anode
Cathode

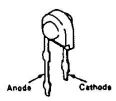
TLS221


1
2
1. anode
2 cathode

BR4371F


Anode
Cathode

GL453

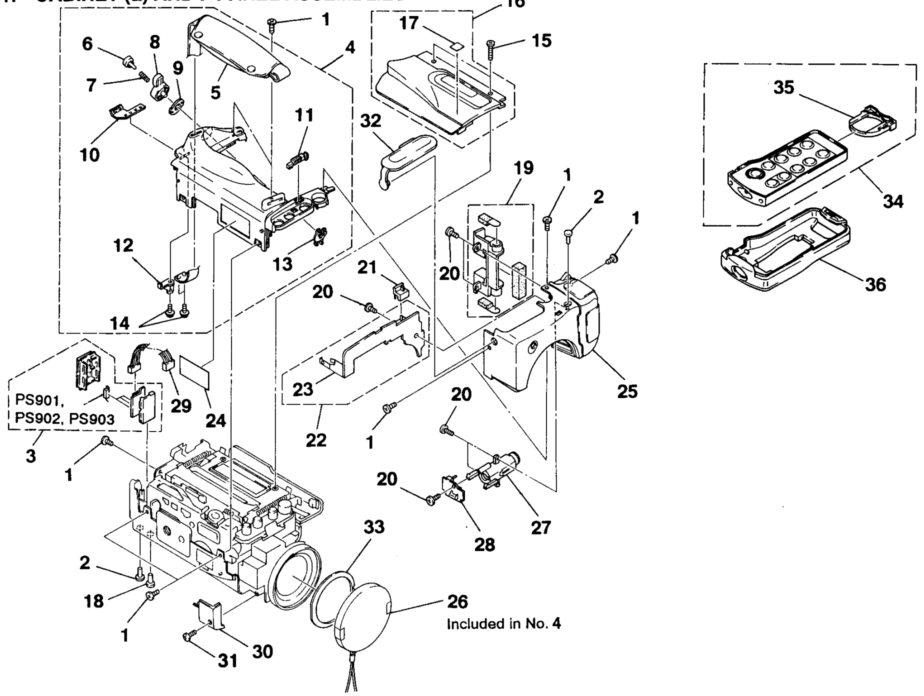

Anode
Cathode

SECTION 5
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. CABINET (L) AND F PANEL ASSEMBLIES


16
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17
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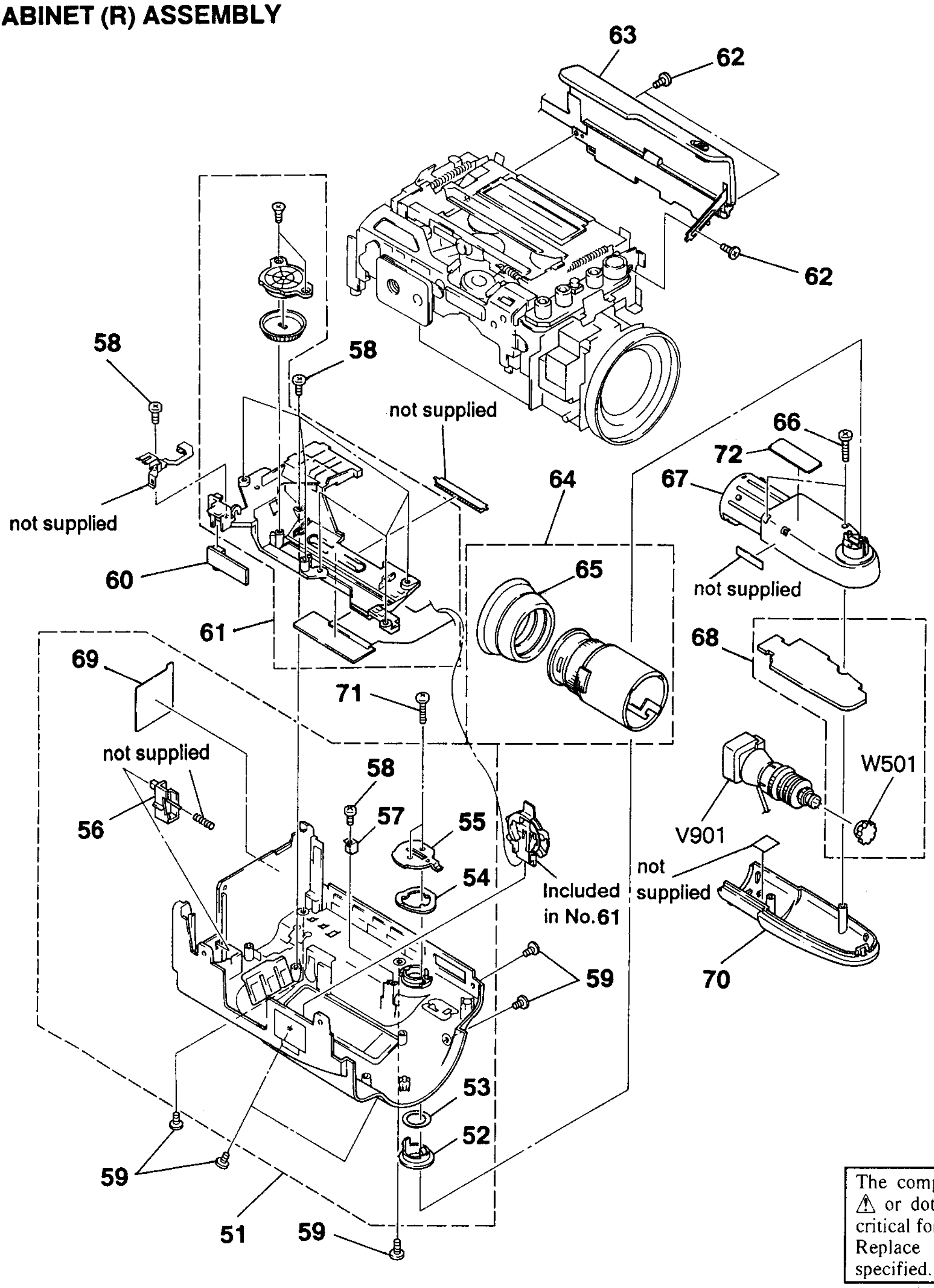
5
11
32
35
10
19
1
34
2
1
12
13
21
20
20
36
14
25
PS901,
PS902, PS903
29
24
23
20
3
22
1
1
20
33
27
28
2
18
26
1
30
31

26 Included in No. 4

Ref. No.	Part No.	Description	Remark
1	3-719-381-01	SCREW (M2X4)	
2	3-728-267-01	COVER, 3.5 JACK (MIC, PHONES)	
3	1-537-297-31	TERMINAL BOARD, BATTERY	
4	A-7081-937-A	CABINET (L) BLOCK ASSY (E, Australian, Tourist model)	
4	A-7081-989-A	CABINET (L) BLOCK ASSY (AEP, UK model)	
5	3-736-807-01	BELT, GRIP	
6	3-942-950-01	BUTTON, S/S	
7	3-578-221-00	SPRING, COMPRESSION	
8	3-942-985-01	KNOB, STAND-BY	
9	3-736-364-01	SPRING	
10	3-736-338-01	BRACKET, BELT	
11	3-749-704-01	LID, IN OUT (AEP, UK model)	
11	3-942-944-01	KNOB, IN OUT (E, Australian, Tourist model)	
12	3-736-360-01	JOINT, LR	
13	3-942-953-01	HOLDER, STAND-BY KNOB	
14	3-669-480-11	+ PTPWH 2	
15	3-727-902-61	SCREW (M1.4X5), SPECIAL	
16	X-3941-724-1	LID ASSY, CASSETTE	
* 17	3-703-713-41	STICKER, SONY SYMBOL (10)	
18	3-728-266-01	COVER, 2.5 JACK (REMOTE)	
19	1-542-180-11	MICROPHONE ASSY	
20	3-719-408-01	SCREW (B2), TAPPING, P3	
21	3-946-477-01	BUTTON, MICROPHONE	
* 22	A-7063-221-A	MA-109P BOARD, COMPLETE	
23	3-947-195-01	PLATE, GROUND, MC	
* 24	3-948-303-01	LABEL, MODEL NUMBER (AEP)(AEP model)	
* 24	3-948-304-01	LABEL, MODEL NUMBER (UK)(EXCEPT AEP model)	
25	X-3941-445-1	PANEL ASSY, F	
26	X-3941-358-1	CAP ASSY, LENS	
27	X-3941-494-1	CATCHER ASSY (F), RAY	
* 28	A-7071-629-A	RM-54P BOARD, COMPLETE	
29	1-944-055-11	HARNESS (CD-26)	
* 30	X-3941-616-1	COVER ASSY, LOWER, VA	
31	3-947-677-01	SCREW (1.7X4), TAPPING (B)	
32	3-942-986-01	COVER, JACK	
* 33	3-946-907-01	SHEET, NAME RING	
34	1-466-801-11	REMOTE COMMANDER (CAM CODER)(RMT-508)	
35	3-708-412-01	LID, BATTERY CASE, LITHIUM	
* 36	3-943-154-11	HOLDER, REMOTE CONTROL	
⚠PS901	1-532-841-21	LINK, IC	
⚠PS902	1-532-841-21	LINK, IC	
⚠PS903	1-532-841-21	LINK, IC	

5-2. CABINET (R) ASSEMBLY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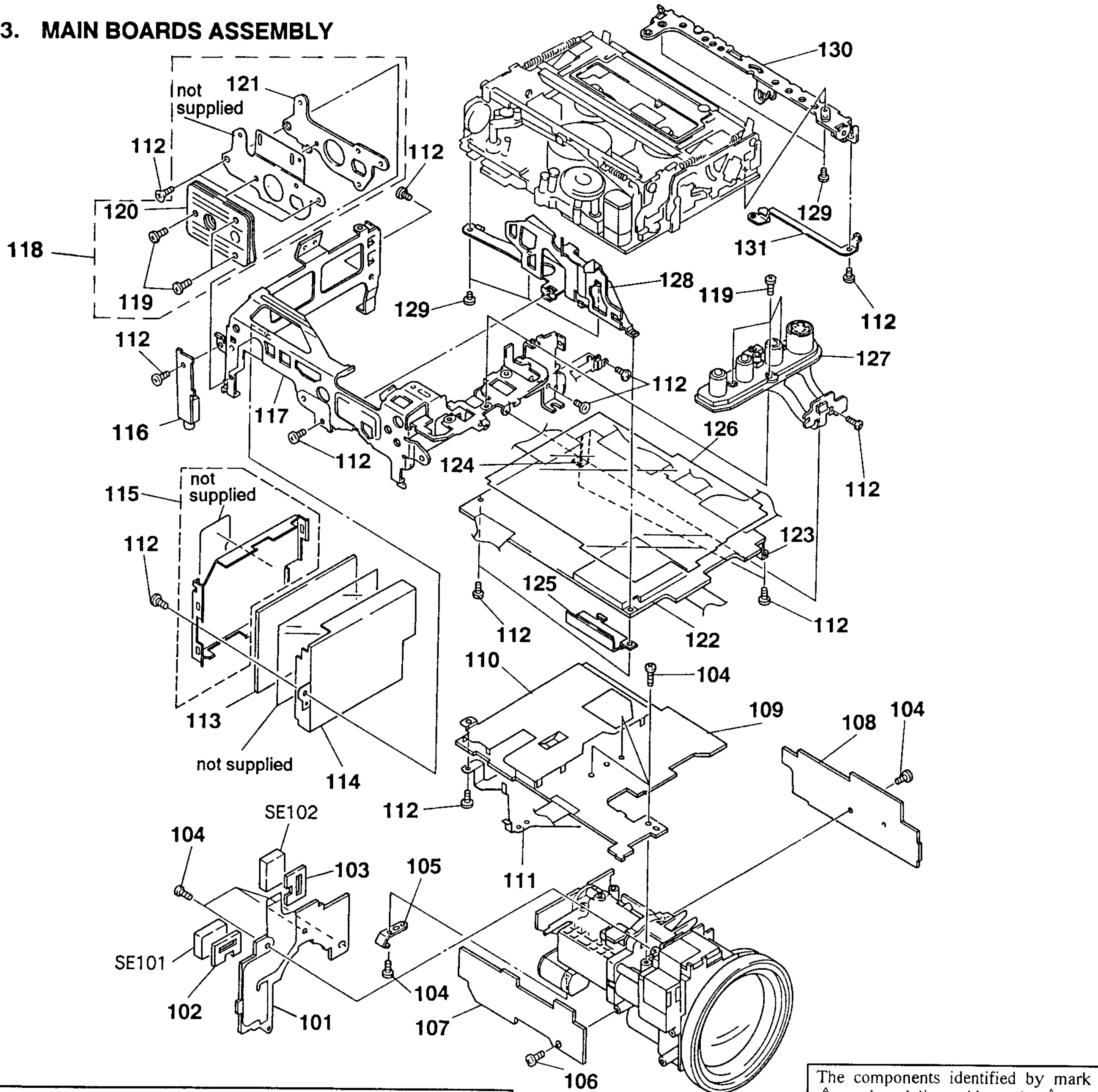
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
51	X-3941-748-1	CABINET (R) ASSY (AEP, UK model)	
51	X-3942-045-1	CABINET (R) ASSY (E, Australian, Tourist model)	
52	3-747-109-01	SLEEVE, EVF	
53	3-747-112-01	RING, TILT	
54	3-747-110-01	SPRING, LEAF, TILT	
55	3-747-111-01	PLATE, LOCK, TILT	
56	3-747-164-01	LEVER, RELEASE	
57	3-747-178-01	REINFORCEMENT, TILT LOCK	
58	3-719-601-01	SCREW (B2X5), TAPPING	
59	3-719-381-01	SCREW (M2X4)	
* 60	A-7071-628-A	LJ-6P BOARD, COMPLETE	
61	1-466-689-21	SWITCH BLOCK, CONTROL (CF-4)	
62	3-713-786-51	SCREW (M2X3)	
63	1-466-688-51	SWITCH BLOCK, COTROL (FK-4) (E, Australian, Tourist model)	

Ref. No.	Part No.	Description	Remark
63	1-466-800-11	SWITCH BLOCK, CONTROL (FK-4) (AEP, UK model)	
64	X-3941-603-1	HOLDER ASSY, FINDER	
65	3-946-426-01	EYE CUP	
66	3-713-790-31	SCREW (M2X8), TAPPING, P3	
67	X-3941-292-1	CABINET (L) ASSY, EVF	
* 68	A-7063-220-A	VF-42P BOARD, COMPLETE	
* 69	3-945-964-01	LABEL (U), BATTERY FITTING	
70	3-943-077-81	CABINET (R), EVF	
71	3-740-546-01	SCREW (M2X10)	
* 72	3-704-235-01	LABEL, CAUTION (UK model)	
⚠V901	1-452-565-11	CRT ASSY (M01KTA80WB)	
⚠W501	1-540-019-21	SOCKET ASSY, CRT	

5-3. MAIN BOARDS ASSEMBLY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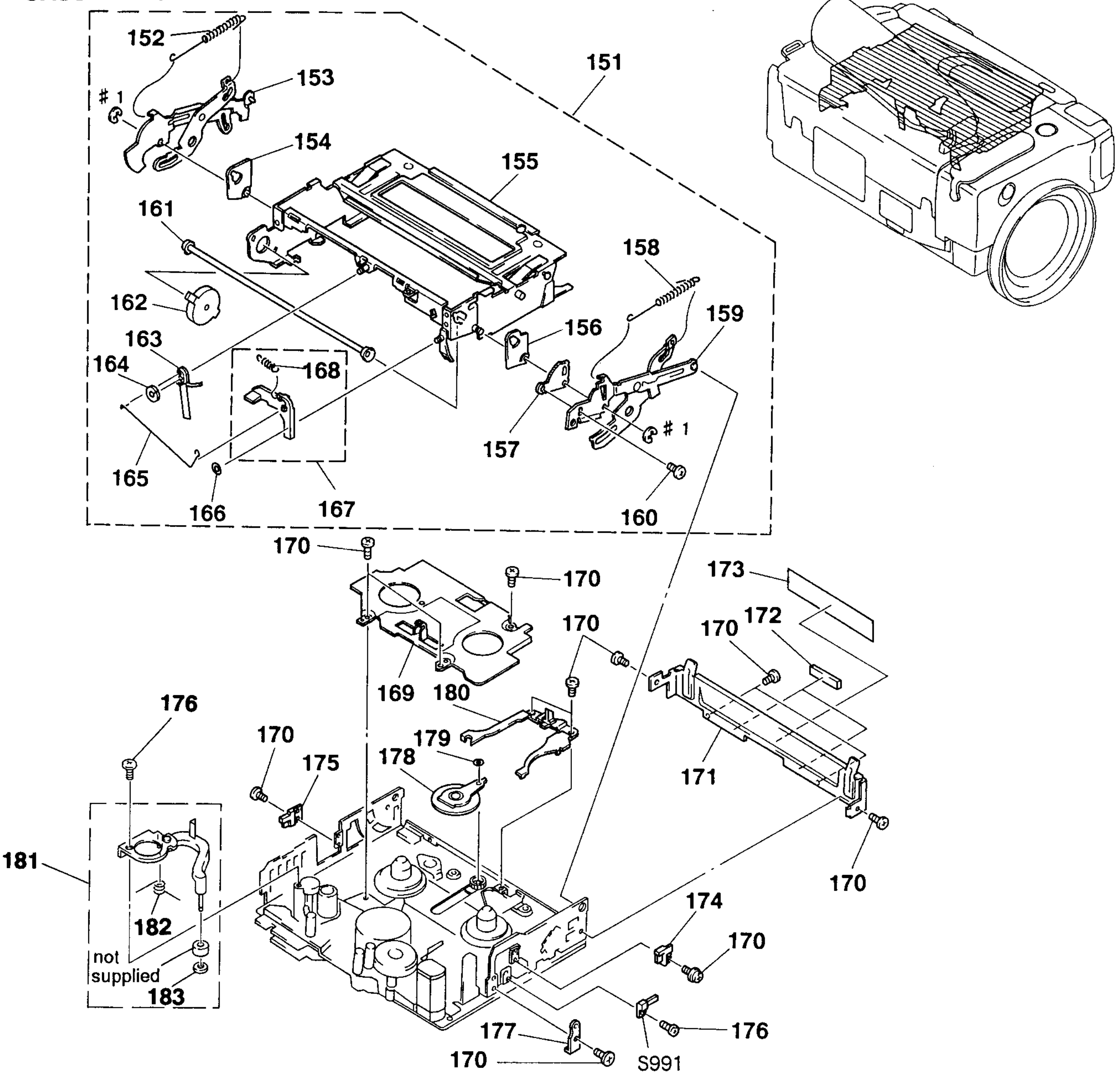
* Be sure to read "Precautions for Replacement of CCD Imager" on page 111 when changing the CCD imager.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 101	A-7063-218-A	SE-22P BOARD, COMPLETE	
* 102	3-947-851-01	SHEET, SENSOR	
* 103	3-947-851-11	SHEET, SENSOR	
104	3-719-601-01	SCREW (B2X5), TAPPING	
105	3-946-471-01	BRACKET, LENS	
106	3-947-491-01	SCREW (B) (2X4), TAPPING	
* 107	A-7063-219-A	VD-21P BOARD, COMPLETE	
* 108	A-7063-217-A	AU-143 BOARD, COMPLETE	
* 109	A-7063-216-A	VC-126 BOARD, COMPLETE	
* 110	3-946-451-01	CASE (LOWER), SHIELD, VC	
111	3-947-675-01	HEAT SINK, VC	
112	3-713-786-51	SCREW (M2X3)	
*⚠113	A-7063-214-A	DD-52 BOARD, COMPLETE (DC-DC CONVERTER UNIT)	
114	3-946-454-01	CASE(MAIN), SHIELD, DD CONVERTER	
115	X-3941-749-1	DD CONVERTER (LID) ASSY	
* 116	A-7071-627-A	HJ-13P BOARD, COMPLETE	

Ref. No.	Part No.	Description	Rema
117	X-3941-343-1	FRAME ASSY, MD	
118	X-3941-345-1	FRAME ASSY, TRIPOD	
119	3-719-381-01	SCREW (M2X4)	
120	3-736-396-51	SCREW, TRIPOD	
121	3-946-462-01	FRAME, TRIPOD	
* 122	A-7063-215-A	VS-98 BOARD, COMPLETE	
* 123	3-946-456-01	PLATE (L), GROUND, VS	
* 124	3-942-939-01	PLATE (R), GROUND, VS	
* 125	3-942-936-01	SHIELD, RP CONNECTOR	
126	3-946-457-01	SHEET, HEAT INSULATING, VS	
127	1-537-407-12	TERMINAL BOARD (JACK BOARD)	
128	X-3941-344-1	FRAME (LOWER) ASSY	
129	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
130	3-946-459-01	FRAME (UPPER)	
131	3-946-461-01	REINFORCEMENT, VF	
SE101	1-466-700-11	SENSOR, ANGLE SPEED (YS)	
SE102	1-466-700-11	SENSOR, ANGLE SPEED (PS)	

5-4. CASSETTE COMPARTMENT HOLDER ASSEMBLY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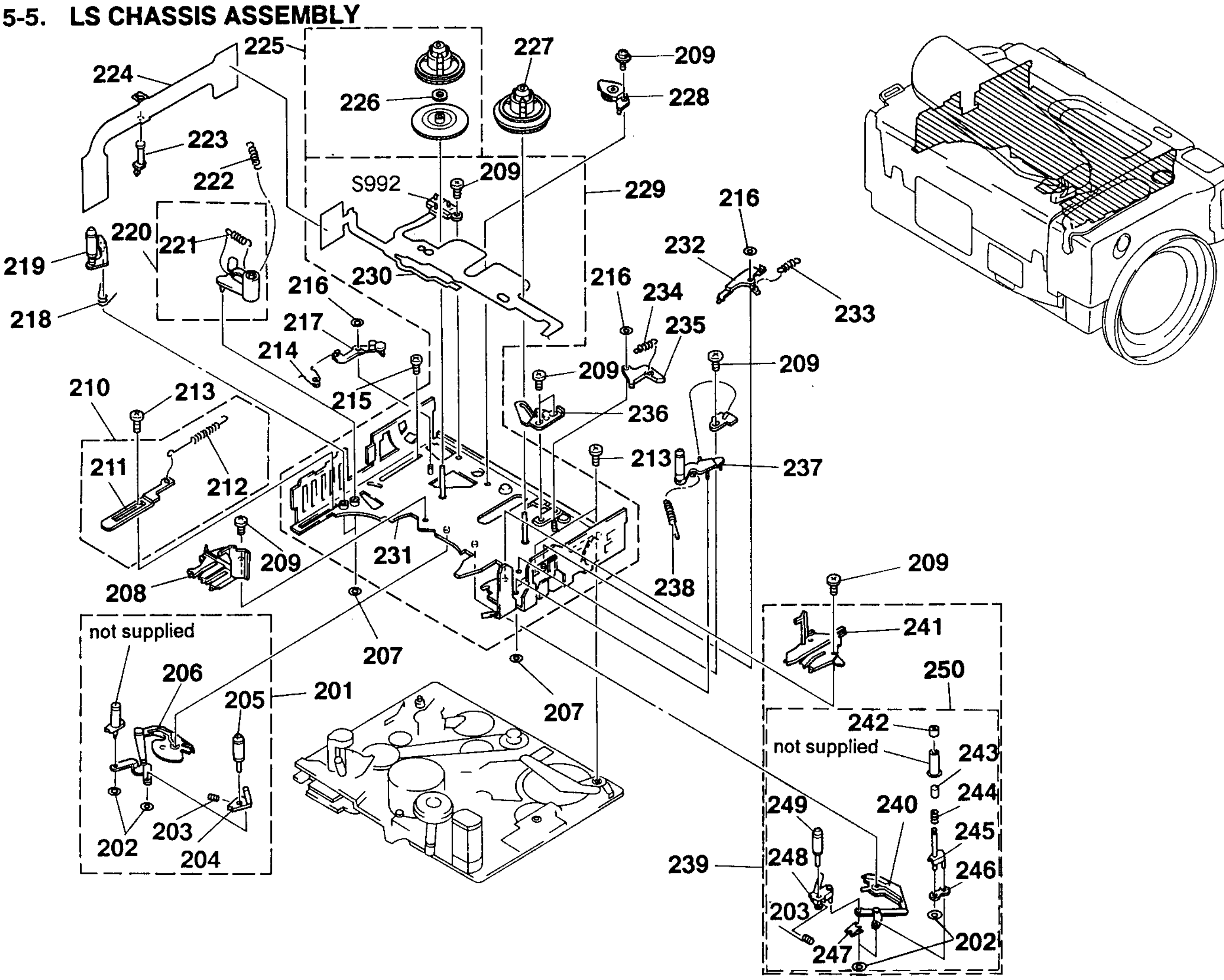
Ref. No.	Part No.	Description	Remark
151	A-7040-256-A	HOLDER BLOCK ASSY (4)	
152	3-739-872-01	SPRING, TENSION	
153	X-3940-718-1	ARM (T) ASSY (4), F	
154	3-728-145-01	BEARING (T), MIDWAY GEAR	
155	X-3940-719-1	HOLDER ASSY (4)	
156	3-728-146-01	BEARING (S), MIDWAY GEAR	
157	3-739-808-01	PLATE (2), ADJUSTMENT, C ARM	
158	3-739-873-01	SPRING, TENSION	
159	X-3940-717-1	ARM (S) ASSY (4), F	
160	3-728-126-01	SCREW (M1.4X2), SPECIAL HEAD	
161	X-3727-920-1	GEAR ASSY, MIDWAY	
162	X-3739-809-1	DAMPER ASSY (2)	
163	X-3940-991-1	PROTECTOR ASSY (2), T	
164	3-749-304-01	WASHER, STOPPER	
165	3-728-277-01	BAR, JOINT	
166	3-331-007-11	WASHER	
167	A-7040-164-A	ARM BLOCK ASSY, TP	
168	3-509-127-00	SPRING, TENSION	
169	3-728-227-01	BASE, LED	
170	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD	
171	3-943-055-01	FRAME (L), LS	
* 172	3-736-841-02	SPACER, FK	
173	3-943-701-01	LABEL, CAUTION	
174	3-727-957-01	HOLDER (S), SENSOR	
175	3-727-954-01	HOLDER (T), SENSOR	
176	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
177	3-727-946-01	SUPPORT, LS	
178	X-3727-926-1	ARM ASSY, GEAR	
179	3-315-414-31	WASHER	
180	X-3940-087-1	BASE ASSY, RL	
181	A-7040-264-D	ROLLER BLOCK ASSY, HC	
182	3-943-439-02	SPRING, TORSION	
183	3-321-393-11	WASHER, STOPPER	
S991	1-572-611-11	SWITCH, LEAF (C LOCK)	

5-5. LS CHASSIS ASSEMBLY



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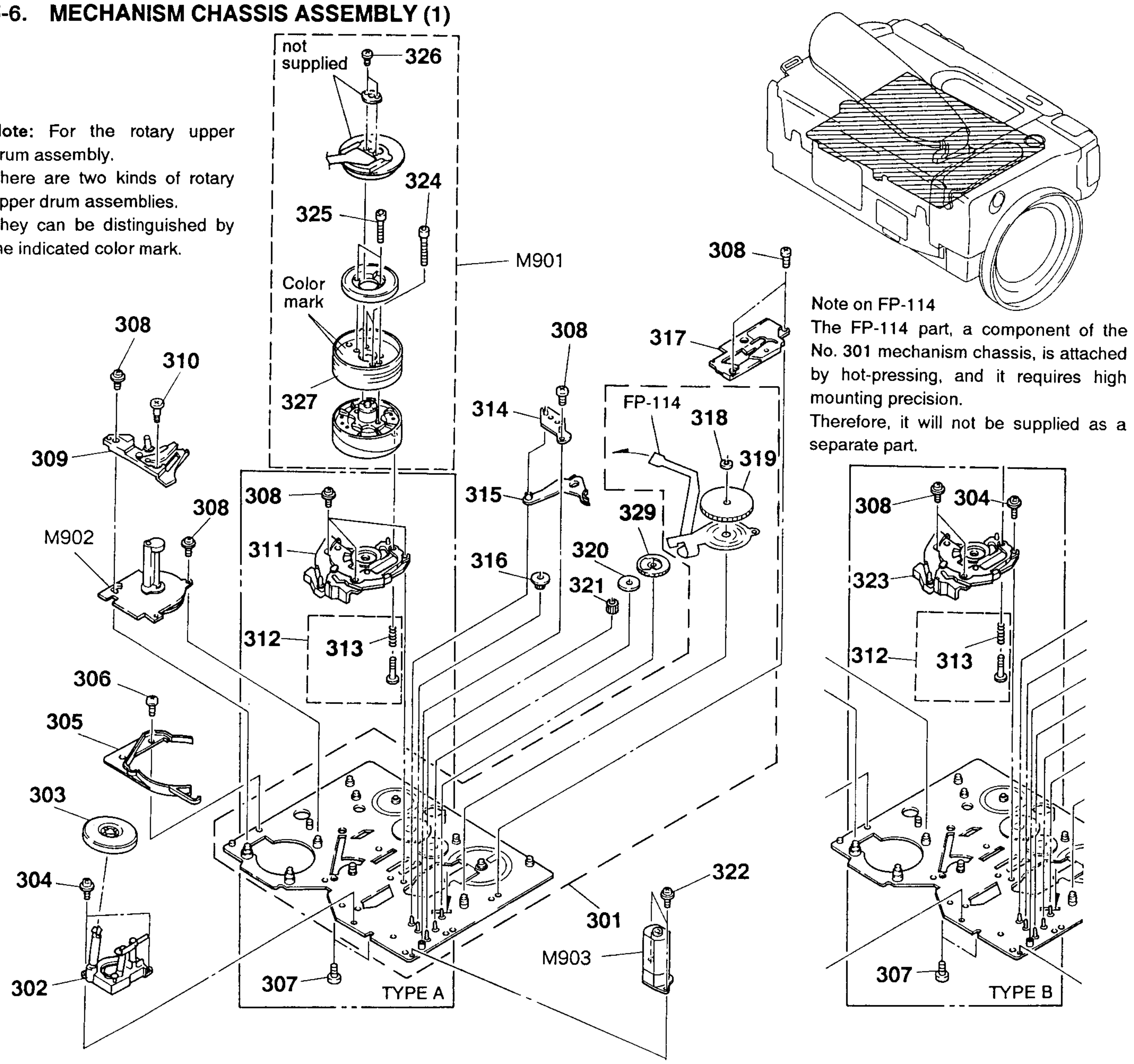
Ref. No.	Part No.	Description	Remark
201	A-7040-148-A	ARM (T) BLOCK ASSY, GUIDE	
202	3-331-007-11	WASHER	
203	3-728-290-01	SCREW (M1.2)	
204	X-3727-947-1	BASE ASSY, TG7	
205	X-3727-994-1	ROLLER ASSY, TG8	
206	X-3727-940-1	ARM (T) ASSY, GUIDE	
207	3-315-414-31	WASHER	
208	3-728-244-01	RAIL (T), GUIDE	
209	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD	
210	A-7040-150-A	SLIDER BLOCK ASSY, CAM	
211	3-728-089-01	SLIDER, CAM	
212	3-727-936-01	SPRING, TENSION	
213	3-941-601-01	SCREW (M1.4X2.5), SPECIAL HEAD	
214	3-732-068-01	SPRING (JD), RATCHET	
215	3-732-085-01	SCREW (1.2X1.6), SPECIAL HEAD	
216	3-728-091-01	WASHER, STOPPER	
217	X-3728-005-1	RATCHET ASSY (JD), T	
218	3-727-939-01	SPRING (JD), TORSION	
219	A-7040-151-A	ARM BLOCK ASSY, TG11	
220	A-7040-240-A	ARM BLOCK ASSY (JD), PINCH	
221	3-727-927-01	SPRING (POWER TENSION), TENSION	
222	3-732-089-01	SPRING (JD), TENSION	
223	3-739-807-01	SHAFT (2), FLEXIBLE ROTARY	
224	1-639-334-11	FP-422 FLEXIBLE BOARD	
225	X-3727-951-2	TABLE ASSY, REEL, TAKE-UP	
226	3-701-439-11	WASHER	

Ref. No.	Part No.	Description	Remark
227	X-3727-952-1	TABLE ASSY, REEL, SUPPLY	
228	X-3727-914-4	CLUTCH ASSY, ONEWAY	
229	A-7010-365-A	MD ASSY (1)	
230	A-7062-792-A	FP-423 BLOCK ASSY	
231	X-3940-186-1	CHASSIS ASSY (S), LS	
232	3-732-077-01	RATCHET (JD), S	
233	3-732-076-01	SPRING (JD), TENSION	
234	3-732-078-01	SPRING (JD), TENSION	
235	3-732-079-01	ARM (JD), S SOFT	
236	3-728-206-01	PLATE, CAM, LS	
237	X-3749-001-1	ARM ASSY (JD), TG1	
238	3-940-616-03	SPRING (JD), TENSION	
239	A-7040-263-A	RAIL(S)BLOCK ASSY(3)(JD),GUIDE	
240	X-3727-941-1	ARM (S) ASSY, GUIDE	
241	3-728-226-01	RAIL (S) (JD), GUIDE	
242	3-943-822-01	FLANGE (P), TG4 UPPER	
243	3-728-048-01	SLEEVE, TG4	
244	3-728-023-01	SPRING, COMPRESSION	
245	X-3727-936-2	BASE ASSY, TG4	
246	3-728-053-01	PLATE, UNDER, TG4	
247	3-728-062-01	SPRING (6GB), LEAF	
248	X-3727-948-1	BASE ASSY, TG6	
249	X-3940-733-1	ROLLER ASSY (3), TG5	
250	A-7040-262-C	ARM (S) BLOCK ASSY (3), GUIDE	
S992	1-572-802-12	SWITCH, PUSH (3 KEY) (REC PROOF, ME/MP, Hi-8 MP)	

5-6. MECHANISM CHASSIS ASSEMBLY (1)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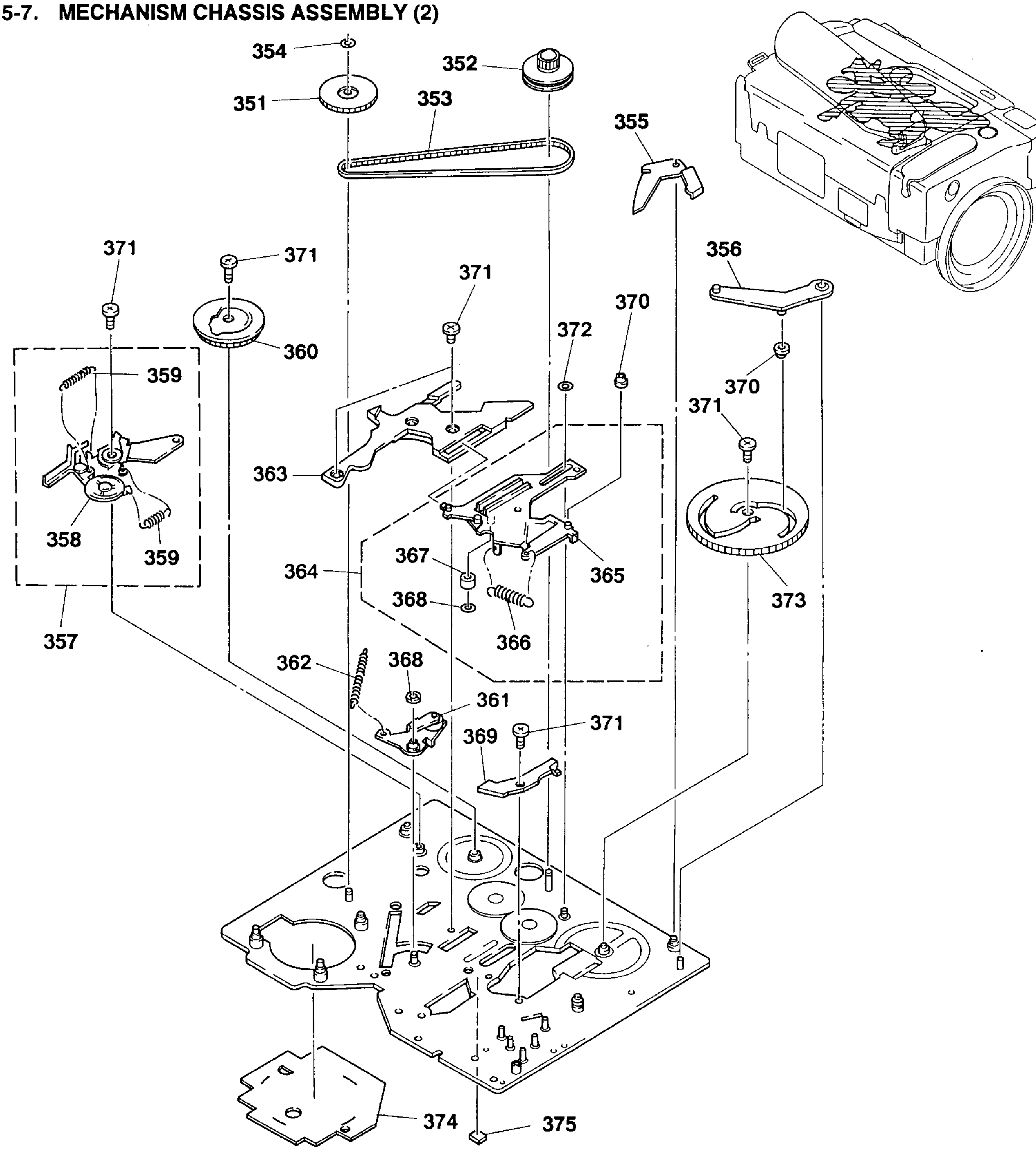
TYPE B

Note: For the rotary upper drum assembly.
There are two kinds of rotary upper drum assemblies.
They can be distinguished by the indicated color mark.

Note on FP-114
The FP-114 part, a component of the No. 301 mechanism chassis, is attached by hot-pressing, and it requires high mounting precision.
Therefore, it will not be supplied as a separate part.

Ref. No.	Part No.	Description	Remark
301	A-7040-154-P	CHASSIS ASSY, MECHANICAL	
302	A-7040-251-F	BASE (1) BLOCK ASSY (3), RAIL	
303	3-943-088-01	WHEEL, FLY, IP	
304	3-703-816-51	SCREW (M1.4X3.5), SPECIAL HEAD	
305	3-732-064-01	COVER, ROTOR	
306	3-728-126-01	SCREW (M1.4X2), SPECIAL HEAD	
307	3-728-108-01	SCREW (M1.4X4.5)	
308	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
309	X-3941-027-2	RAIL (BASE) (3) ASSY (3), GUIDE	
310	3-732-084-01	SCREW (M1.4), SPECIAL HEAD	
* 311	A-7040-222-D	BASE (M) BLOCK ASSY, DRUM (TYPE A)	
312	X-3728-009-2	SCREW ASSY, FITTING	
313	3-743-633-01	SPRING, COMPRESSION	
314	3-728-119-01	RETAINER, GEAR	
315	X-3727-906-1	ARM ASSY	
316	X-3727-903-1	GEAR ASSY, NO. 1	
317	3-728-231-06	BASE, TG-1 CAM	
318	3-579-788-01	WASHER, STOPPER	
319	X-3727-915-1	GEAR ASSY, MODE	
320	X-3727-904-1	GEAR ASSY, NO. 2	
321	3-728-149-01	GEAR, NO. 0	
322	3-732-087-31	SCREW (M1.4X1.8), SPECIAL HEAD	
* 323	A-7040-203-A	BASE (A) BLOCK ASSY, DRUM (TYPE B)	
324	3-727-809-02	SCREW (M1.4X5), HEXAGONAL HOLE	
325	3-727-807-03	SCREW (M1.7X3.3), HEXAGONAL HOLE	
326	3-728-108-41	SCREW (M1.4X2.7)	
327	A-7049-461-A	DRUM ASSY, UPPER, ROTARY (DGR-80-R-(1)) (COLOR MARK; GREEN, GREEN/RED, BLACK, BLACK/RED)	
327	A-7049-464-A	DRUM ASSY, UPPER, ROTARY (DGR-80-R-(2)) (COLOR MARK; RED, RED/RED, BLUE, BLUE/RED)	
329	3-728-189-02	GEAR, NO. 3	
M901	A-7048-534-A	DRUM BLOCK ASSY (DGH-80A-R)	
M902	8-835-329-12	MOTOR, DC U-21A (CAPSTAN)	
M903	1-541-607-21	MOTOR, DC (LA12G-344VA) (LOADING)	

5-7. MECHANISM CHASSIS ASSEMBLY (2)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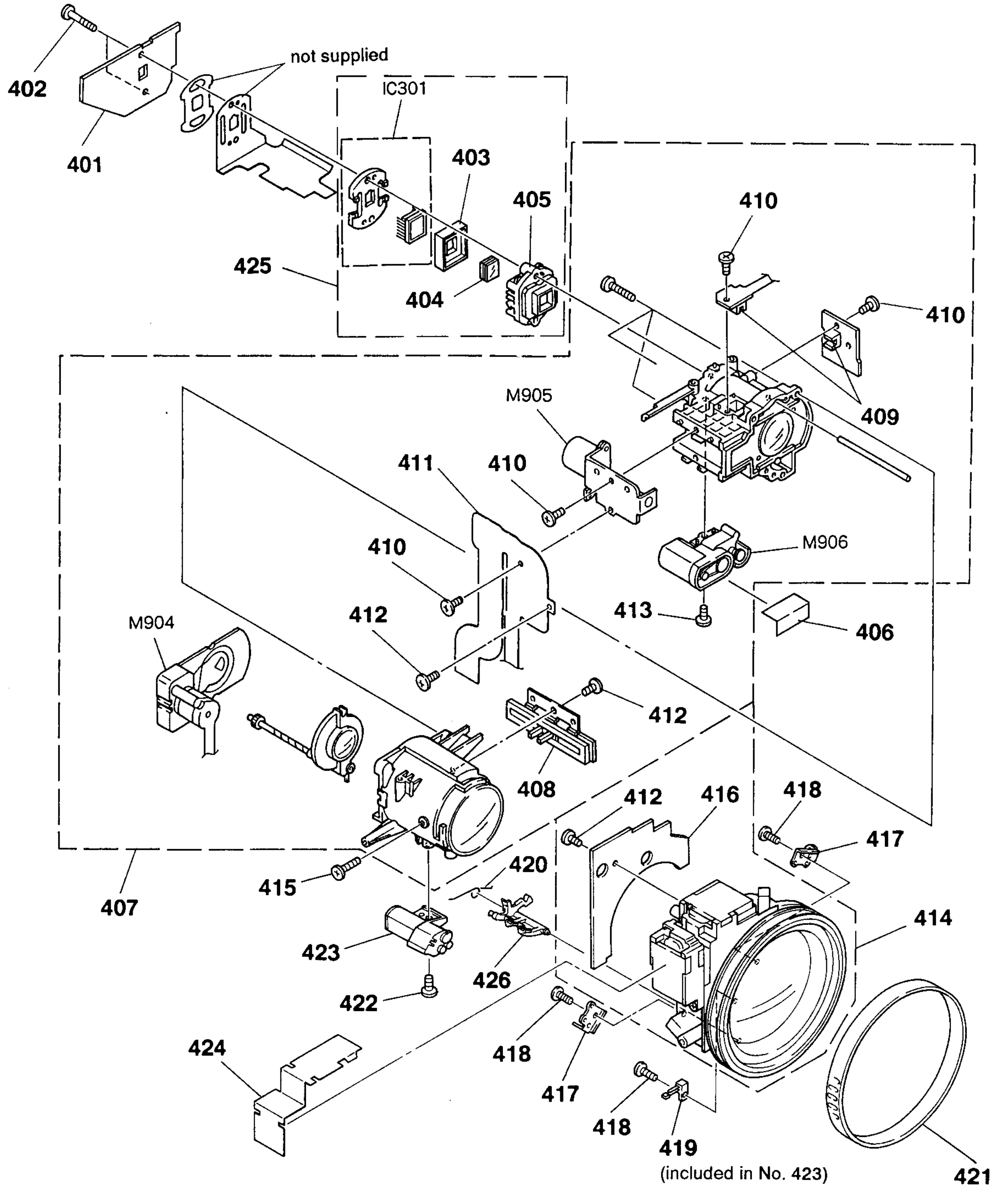
Ref. No.	Part No.	Description	Remark
351	X-3727-930-1	GEAR ASSY, CONVERSION	
352	X-3727-931-1	PULLEY ASSY, MIDWAY	
353	3-728-212-01	BELT, RELAY	
354	3-728-091-01	WASHER, STOPPER	
355	3-728-154-01	ARM, EJ	
356	3-941-980-01	ARM (T), LS	
357	A-7040-152-A	ARM BLOCK ASSY, PINCH PRESS	
358	X-3940-335-1	ARM ASSY, PINCH PRESS	
359	3-728-065-01	SPRING, TENSION	
360	3-728-190-01	CAM (B)	
361	X-3727-924-2	ARM ASSY, GUIDE LOCK	
362	3-728-015-01	SPRING (POWER TENSION), TENSION	
363	3-728-228-03	SUPPORT (T), GL	
364	A-7040-153-A	SLIDER BLOCK ASSY, GL	
365	X-3941-931-1	SLIDER ASSY, GL	
366	3-727-929-01	SPRING (POWER TENSION), TENSION	
367	3-728-144-01	ROLLER, GL	
368	3-331-007-11	WASHER	
369	3-728-213-01	SUPPORT (S), GL	
370	3-728-109-01	ROLLER, LS	
371	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
372	3-315-384-31	WASHER, STOPPER	
373	3-728-208-02	CAM (A)	
374	3-942-901-01	COVER (L), CAPSTAN	
375	3-743-634-01	SPACER, RUBBER	

5-8. CCD ASSEMBLY AND ZOOM LENS (VCL-6210WB) ASSEMBLIES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ef. No.	Part No.	Description	Remark
401	A-7071-626-A	CD-72P BOARD, COMPLETE	
402	3-947-268-01	SCREW (P TIGHT) (2), TAPPING	
403	3-946-857-11	RUBBER (S), SEAL	
404	1-547-529-21	FILTER BLOCK, OPTICAL (OFB-03-03)	
405	3-946-856-11	ADAPTOR (H), CCD FITTING	
406	3-948-061-01	COVER, Z GEAR	
407	3-708-436-01	LENS BLOCK	
408	3-708-446-01	METER, POTENTIAL	
409	3-708-435-01	PHOTO INTERRUPTER	
410	3-707-946-01	SCREW	
411	3-708-441-01	FLEXIBLE	
412	3-708-053-01	SCREW, FB FITTING	
413	3-708-450-01	SCREW, PZ	
414	3-708-437-01	VAP BLOCK	
415	3-708-449-01	SCREW, VAP FITTING	

Ref. No.	Part No.	Description	Remark
416	3-708-440-01	CS BOARD	
417	3-708-438-01	BRACKET	
418	3-707-947-01	SCREW, METER LENS	
419	3-708-447-01	SWITCH, LEAF	
420	3-708-448-01	SP, MECHANICAL LOCK	
421	3-708-439-01	KNURL, (F) RUBBER	
422	3-708-249-01	SCREW AF BLOCK	
423	3-708-444-01	MOTOR ASSY, INITIALIZE	
424	3-947-593-01	COVER, ACTUATOR	
425	A-7030-336-A	CCD ASSY (AUTO)	
426	3-708-561-01	LEVER, LOCK	
IC301	A-7030-338-A	CCD BLOCK ASSY (BOND)(CCD IMAGER)	
M904	3-708-445-01	METER, IG (IRIS)	
M905	3-708-443-01	MOTOR ASSY, STEPPING (FOCUS)	
M906	3-708-442-01	MOTOR ASSY, PZ (ZOOM)	

AU-143

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Hardware (# mark) list is given in the last of this parts list.
- Items marked "*" are not stocked since they a
  seldom required for routine service. Some del
  should be anticipated when ordering these iten
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description	Remark
*	A-7063-217-A	AU-143 BOARD, COMPLETE ************************ (Ref. No 6, 000 Series)	
	1-691-551-11	PIN, CONNECTOR (SMD) 8P	
		⟨ CAPACITOR ⟩	
C600	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C601	1-162-964-11	CERAMIC CHIP 0. 001uF 10% 50V	
C602	1-135-259-11	TANTAL. CHIP 10uF 20% 6. 3V	
C603	1-135-259-11	TANTAL. CHIP 10uF 20% 6. 3V	
C604	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C605	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C606	1-164-633-11	CERAMIC CHIP 0. 1uF 10% 25V	
C607	1-164-633-11	CERAMIC CHIP 0. 1uF 10% 25V	
C608	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C609	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C610	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C611	1-163-989-11	CERAMIC CHIP 0. 033uF 10% 25V	
C612	1-162-967-11	CERAMIC CHIP 0. 0033uF 10% 50V	
C613	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C614	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C615	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C616	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C617	1-163-989-11	CERAMIC CHIP 0. 033uF 10% 25V	
C618	1-162-967-11	CERAMIC CHIP 0. 0033uF 10% 50V	
C619	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C620	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C621	1-126-209-11	ELECT CHIP 100uF 20% 4V	
C622	1-135-181-21	TANTALUM CHIP 4. 7uF 20% 6. 3V	
C623	1-135-259-11	TANTAL. CHIP 10uF 20% 6. 3V	
C624	1-135-202-21	TANTAL. CHIP 22uF 20% 4V	
C625	1-163-809-11	CERAMIC CHIP 0. 047uF 10% 25V	
C626	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C627	1-135-181-21	TANTALUM CHIP 4. 7uF 20% 6. 3V	
C628	1-135-259-11	TANTAL. CHIP 10uF 20% 6. 3V	
C629	1-135-259-11	TANTAL. CHIP 10uF 20% 6. 3V	
C630	1-135-202-21	TANTAL. CHIP 22uF 20% 4V	
C631	1-163-809-11	CERAMIC CHIP 0. 047uF 10% 25V	
C632	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C633	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C634	1-162-965-11	CERAMIC CHIP 0. 0015uF 10% 50V	
C635	1-162-965-11	CERAMIC CHIP 0. 0015uF 10% 50V	
C636	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C637	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C638	1-162-968-11	CERAMIC CHIP 0. 0047uF 10% 50V	
C639	1-162-968-11	CERAMIC CHIP 0. 0047uF 10% 50V	
C640	1-162-949-11	CERAMIC CHIP 47PF 5% 50V	
C641	1-162-949-11	CERAMIC CHIP 47PF 5% 50V	
C644	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C645	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C646	1-162-952-11	CERAMIC CHIP 82PF 5% 50V	
C647	1-135-181-21	TANTALUM CHIP 4. 7uF 20% 6. 3V	
C648	1-135-181-21	TANTALUM CHIP 4. 7uF 20% 6. 3V	
C649	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C650	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C651	1-135-259-11	TANTAL. CHIP 10uF 20% 6. 3V	
C652	1-135-259-11	TANTAL. CHIP 10uF 20% 6. 3V	
C653	1-162-969-11	CERAMIC CHIP 0. 0068uF 10% 25V	
C654	1-162-969-11	CERAMIC CHIP 0. 0068uF 10% 25V	
C655	1-162-977-11	CERAMIC CHIP 0. 0018uF 10% 50V	
C656	1-126-205-11	ELECT CHIP 47uF 20% 6. 3V	
C657	1-162-977-11	CERAMIC CHIP 0. 0018uF 10% 50V	
C658	1-126-205-11	ELECT CHIP 47uF 20% 6. 3V	
C659	1-126-205-11	ELECT CHIP 47uF 20% 6. 3V	
C660	1-126-205-11	ELECT CHIP 47uF 20% 6. 3V	
C661	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C662	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C663	1-162-966-11	CERAMIC CHIP 0. 0022uF 10% 50V	
C664	1-162-966-11	CERAMIC CHIP 0. 0022uF 10% 50V	
C665	1-126-205-11	ELECT CHIP 47uF 20% 6. 3V	
C666	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C667	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C668	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C669	1-135-259-11	TANTAL. CHIP 10uF 20% 6. 3V	
C670	1-135-202-21	TANTAL. CHIP 22uF 20% 4V	
C671	1-135-202-21	TANTAL. CHIP 22uF 20% 4V	
C672	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C673	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C674	1-162-970-11	CERAMIC CHIP 0. 01uF 10% 25V	
C675	1-135-202-21	TANTAL. CHIP 22uF 20% 4V	
C676	1-135-202-21	TANTAL. CHIP 22uF 20% 4V	
C677	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C678	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C679	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C680	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C681	1-135-202-21	TANTAL. CHIP 22uF 20% 4V	

Ref. No.	Part No.	Description				Remark
C682	1-135-202-21	TANTAL. CHIP	22uF	20%	4V	
C683	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C684	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C685	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C686	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C687	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C688	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C689	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C690	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C691	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C692	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C693	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C694	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C695	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C696	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C697	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C698	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V	
C699	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	

(CONNECTOR)

Ref. No.	Part No.	Description	Remark
CN602	1-580-056-21	PIN, CONNECTOR 3P	
CN603	1-580-252-31	CONNECTOR, BOARD TO BOARD 30P	

(FILTER)

Ref. No.	Part No.	Description	Remark
FL601	1-236-837-21	FILTER, BAND PASS	
FL602	1-236-838-21	FILTER, BAND PASS	

(IC)

Ref. No.	Part No.	Description		Remark
IC601	8-759-823-19	IC	CXA1488R	
IC602	8-759-823-19	IC	CXA1488R	
IC603	8-759-823-21	IC	CXA1536Q	
IC604	8-759-008-67	IC	MC14066BF	

(TRANSISTOR)

Ref. No.	Part No.	Description		Remark
Q601	8-729-905-23	TRANSISTOR	2SA1576-R	
Q603	8-729-402-81	TRANSISTOR	XN4501	
Q604	8-729-402-81	TRANSISTOR	XN4501	
Q605	8-729-402-42	TRANSISTOR	UN5213	
Q606	8-729-402-81	TRANSISTOR	XN4501	
Q607	8-729-403-35	TRANSISTOR	UN5113	
Q608	8-729-402-42	TRANSISTOR	UN5213	

(RESISTOR)

Ref. No.	Part No.	Description				Remark
R602	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R604	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R605	1-216-611-11	METAL CHIP	22	0.5%	1/10W	
R606	1-216-859-11	METAL GLAZE	1.5M	5%	1/16W	
R607	1-216-859-11	METAL GLAZE	1.5M	5%	1/16W	
R609	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R611	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R612	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R613	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R614	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R615	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R616	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R617	1-216-864-11	METAL CHIP	0	5%	1/16W	
R618	1-216-864-11	METAL CHIP	0	5%	1/16W	
R619	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R620	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R621	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R622	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R624	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R625	1-216-817-11	METAL CHIP	470	5%	1/16W	
R628	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R629	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R630	1-216-864-11	METAL CHIP	0	5%	1/16W	
R631	1-216-864-11	METAL CHIP	0	5%	1/16W	
R632	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R633	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R634	1-216-810-11	METAL CHIP	120	5%	1/16W	
R635	1-216-810-11	METAL CHIP	120	5%	1/16W	
R636	1-216-848-11	METAL CHIP	180K	5%	1/16W	
R640	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R641	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R642	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R643	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R644	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W	
R644	1-218-867-11	METAL CHIP	6.8K	0.50%	1/16W	
R645	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R646	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R647	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R648	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R649	1-216-817-11	METAL CHIP	470	5%	1/16W	
R650	1-218-708-11	METAL CHIP	4.7K	0.50%	1/16W	
R650	1-218-863-11	METAL CHIP	4.7K	0.50%	1/16W	
R651	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R652	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R653	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R654	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R655	1-218-716-11	METAL CHIP	10K	0.50%	1/16W	
R655	1-218-871-11	METAL CHIP	10K	0.50%	1/16W	
R656	1-216-813-11	METAL CHIP	220	5%	1/16W	
R658	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R659	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R660	1-216-819-11	METAL CHIP	680	5%	1/16W	
R661	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R662	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R663	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R664	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R665	1-216-804-11	METAL CHIP	39	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R666	1-216-817-11	METAL CHIP	470	5%	1/16W	
R667	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R668	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R669	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R670	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R671	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R672	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R673	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R674	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R675	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R676	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R677	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R678	1-216-841-11	METAL CHIP	47K	5%	1/16W	

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* A-7071-626-A CD-72P BOARD, COMPLETE

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(Ref.No 1,000 Series)

(CAPACITOR)

Ref. No.	Part No.	Description				Remark
C301	1-128-006-11	ELECT CHIP	4.7uF	20%	25V	
C302	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C303	1-128-008-11	ELECT CHIP	3.3uF	20%	35V	
C305	1-162-637-11	CERAMIC CHIP	0.47uF		16V	
C306	1-126-607-11	ELECT CHIP	47uF	20%	4V	
C307	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C308	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C309	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C310	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C312	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V	

(CONNECTOR)

Ref. No.	Part No.	Description	Remark
CN301	1-573-525-21	CONNECTOR, BOARD TO BOARD 16P	

(DIODE)

Ref. No.	Part No.	Description		Remark
D301	8-719-800-76	DIODE	1SS226	
D302	8-719-404-46	DIODE	MA110	
D303	8-719-820-05	DIODE	1SS181	
D304	8-719-404-46	DIODE	MA110	

(COIL)

Ref. No.	Part No.	Description		Remark
L301	1-412-032-11	INDUCTOR CHIP	100uH	

(TRANSISTOR)

Ref. No.	Part No.	Description		Remark
Q301	8-729-010-75	TRANSISTOR	MSC4116-B/C	
Q302	8-729-903-10	TRANSISTOR	FMW1	
Q303	8-729-232-86	TRANSISTOR	2SK1875	

(RESISTOR)

Ref. No.	Part No.	Description				Remark
R301	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R302	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R303	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R304	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R305	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R306	1-216-820-11	METAL CHIP	820	5%	1/16W	
R307	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R308	1-216-850-11	METAL CHIP	270K	5%	1/16W	
R309	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R310	1-216-809-11	METAL CHIP	100	5%	1/16W	
R311	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R313	1-216-864-11	METAL CHIP	0	5%	1/16W	

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* A-7063-214-A DD-52 BOARD, COMPLETE

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(Ref.No 9,000 Series)

(CAPACITOR)

Ref. No.	Part No.	Description				Remark
C231	1-126-204-11	ELECT CHIP	47uF	20%	16V	
C232	1-128-065-11	ELECT CHIP	68uF	20%	10V	
C233	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C234	1-163-119-00	CERAMIC CHIP	120PF	5%	50V	
C235	1-126-204-11	ELECT CHIP	47uF	20%	16V	
C236	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C237	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C238	1-162-953-11	CERAMIC CHIP	100PF	5%	50V	
C239	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	
C240	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	
C241	1-162-959-11	CERAMIC CHIP	330PF	5%	50V	
C242	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V	
C243	1-162-963-11	CERAMIC CHIP	680PF	10%	50V	
C244	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V	
C245	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C246	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C247	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C248	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C249	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C250	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C251	1-164-836-11	CERAMIC CHIP	6.8uF		16V	
C252	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C253	1-164-836-11	CERAMIC CHIP	6.8uF		16V	
C254	1-164-836-11	CERAMIC CHIP	6.8uF		16V	
C255	1-164-836-11	CERAMIC CHIP	6.8uF		16V	
C256	1-164-836-11	CERAMIC CHIP	6.8uF		16V	
C257	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C258	1-164-836-11	CERAMIC CHIP	6.8uF		16V	
C259	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C971	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C972	1-164-830-11	CERAMIC CHIP	1uF	22%	16V	
C973	1-164-337-11	CERAMIC CHIP	2.2uF		16V	
C974	1-164-830-11	CERAMIC CHIP	1uF	22%	16V	
C975	1-127-558-11	ELECT(SOLID)	10uF	20%	10V	

Ref.No.	Part No.	Description	Remark
C976	1-127-558-11	ELECT(SOLID) 10uF 20% 10V	
C977	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C978	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C979	1-164-830-11	CERAMIC CHIP 1uF 22% 16V	
C980	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C981	1-164-830-11	CERAMIC CHIP 1uF 22% 16V	
C982	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C983	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C984	1-164-836-11	CERAMIC CHIP 6.8uF 16V	
C985	1-164-836-11	CERAMIC CHIP 6.8uF 16V	
C986	1-164-830-11	CERAMIC CHIP 1uF 22% 16V	
C987	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C988	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C989	1-164-830-11	CERAMIC CHIP 1uF 22% 16V	
C990	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C991	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C992	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C993	1-128-065-11	ELECT CHIP 68uF 20% 10V	
C996	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
		(CONNECTOR)	
CN231	1-691-588-11	PIN, CONNECTOR (1.5MM)(SMD) 5P	
CN232	1-691-534-11	CONNECTOR, BOARD TO BOARD 20P	
CN233	1-691-538-11	CONNECTOR, BOARD TO BOARD 28P	
		(DIODE)	
D231	8-719-989-33	DIODE FC806	
		(IC)	
IC231	8-759-035-98	IC MC141600FU	
IC232	8-759-035-98	IC MC141600FU	
		(COIL)	
L231	1-424-519-21	COIL, MOLD CHOKE 1.0uH	
L232	1-424-519-21	COIL, MOLD CHOKE 1.0uH	
L234	1-424-519-21	COIL, MOLD CHOKE 1.0uH	
L235	1-424-520-21	COIL, MOLD CHOKE 4.7uH	
L236	1-424-520-21	COIL, MOLD CHOKE 4.7uH	
L237	1-424-520-21	COIL, MOLD CHOKE 4.7uH	
L238	1-424-524-21	COIL, CHOKE 47uH	
L239	1-424-524-21	COIL, CHOKE 47uH	
L240	1-424-524-21	COIL, CHOKE 47uH	
L241	1-412-030-11	INDUCTOR CHIP 22uH	
L242	1-412-027-11	INDUCTOR CHIP 2.2uH	
L243	1-424-523-21	COIL, CHOKE 22uH	
L244	1-424-523-21	COIL, CHOKE 22uH	
L245	1-412-034-11	INDUCTOR CHIP 330uH	
L246	1-412-034-11	INDUCTOR CHIP 330uH	
L247	1-412-028-11	INDUCTOR CHIP 4.7uH	

Ref.No.	Part No.	Description	Remark
L248	1-412-030-11	INDUCTOR CHIP 22uH	
L249	1-424-522-21	COIL, CHOKE 10uH	
L250	1-412-027-11	INDUCTOR CHIP 2.2uH	
L251	1-412-030-11	INDUCTOR CHIP 22uH	
		(TRANSISTOR)	
Q231	8-729-823-93	TRANSISTOR FC150	
Q232	8-729-823-95	TRANSISTOR FC149	
Q233	8-729-823-84	TRANSISTOR FP102	
Q234	8-729-823-82	TRANSISTOR FP101	
Q235	8-729-823-82	TRANSISTOR FP101	
Q236	8-729-804-41	TRANSISTOR 2SB1122-S	
Q237	8-729-823-84	TRANSISTOR FP102	
Q238	8-729-823-84	TRANSISTOR FP102	
Q239	8-729-823-93	TRANSISTOR FC150	
Q240	8-729-901-06	TRANSISTOR DTA144EK	
		(RESISTOR)	
R231	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R232	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R233	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R234	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R235	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R236	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R237	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R238	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R239	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R240	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R241	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R241	1-218-881-11	METAL CHIP 27K 0.50% 1/16W	
R242	1-216-855-11	METAL CHIP 680K 5% 1/16W	
R243	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R244	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R244	1-218-881-11	METAL CHIP 27K 0.50% 1/16W	
R245	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R246	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R247	1-216-804-11	METAL CHIP 39 5% 1/16W	
R247	1-218-885-11	METAL CHIP 39K 0.50% 1/16W	
R248	1-216-804-11	METAL CHIP 39 5% 1/16W	
R248	1-218-885-11	METAL CHIP 39K 0.50% 1/16W	
R249	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R250	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R251	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R252	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R253	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R253	1-218-875-11	METAL CHIP 15K 0.50% 1/16W	
R254	1-218-740-11	METAL CHIP 100K 0.50% 1/16W	
R254	1-218-895-11	METAL CHIP 100K 0.50% 1/16W	
R255	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R256	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R257	1-216-839-11	METAL CHIP 33K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R258	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R259	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R381	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R382	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R383	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R384	1-216-296-00	METAL CHIP 0 5% 1/8W	
R971	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R972	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R973	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R974	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R975	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R976	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R977	1-218-881-11	METAL CHIP 27K 0.50% 1/16W	
R978	1-216-820-11	METAL CHIP 820 5% 1/16W	
R979	1-218-885-11	METAL CHIP 39K 0.50% 1/16W	
R980	1-216-033-00	METAL CHIP 220 5% 1/10W	
R981	1-216-033-00	METAL CHIP 220 5% 1/10W	
R982	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R983	1-216-864-11	METAL CHIP 0 5% 1/16W	
R984	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R985	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R986	1-216-852-11	METAL CHIP 390K 5% 1/16W	
R987	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R988	1-216-033-00	METAL CHIP 220 5% 1/10W	
R989	1-216-033-00	METAL CHIP 220 5% 1/10W	
R990	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R991	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R992	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R993	1-216-033-00	METAL CHIP 220 5% 1/10W	
R994	1-216-033-00	METAL CHIP 220 5% 1/10W	
R995	1-216-009-00	METAL CHIP 22 5% 1/10W	
R996	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R997	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
		(VARIABLE RESISTOR)	
RV231	1-238-858-11	RES, ADJ, CERMET 47K	
RV232	1-238-857-11	RES, ADJ, CERMET 22K	
		(TRANSFORMER)	
T231	1-450-785-21	TRANSFORMER, CONVERTER	

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Ref. No.	Part No.	Description	Remark
*	A-7062-792-A	FP-423 BLOCK ASSY ***************** (Ref.No 4,000 Series)	
	3-727-957-01	HOLDER (S), SENSOR	
	3-732-046-01	HOLDER, LED	

Ref. No.	Part No.	Description	Remar
		(DIODE)	
D991	8-719-988-42	DIODE GL453S	
		(HOLE ELEMENT)	
H991	1-808-448-11	ELEMENT, HALL (CHIP TYPE)	
H992	1-808-448-11	ELEMENT, HALL (CHIP TYPE)	
		(TRANSISTOR)	
Q991	8-729-907-25	TRANSISTOR PT4850F	
Q992	8-729-907-25	TRANSISTOR PT4850F	
		(RESISTOR)	
R991	1-216-817-11	METAL CHIP 470 5% 1/16W	
R992	1-216-817-11	METAL CHIP 470 5% 1/16W	
R993	1-216-817-11	METAL CHIP 470 5% 1/16W	
R994	1-216-817-11	METAL CHIP 470 5% 1/16W	
		(SWITCH)	
S991	1-572-611-11	SWITCH, LEAF	
S992	1-572-802-12	SWITCH, PUSH (3 KEY)	

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Ref. No.	Part No.	Description	Remar
*	A-7071-627-A	HJ-13P BOARD, COMPLETE ********************** (Ref.No 6,000 Series)	
		(CAPACITOR)	
C501	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C502	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C503	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		(CONNECTOR)	
CN501	1-691-550-11	PIN, CONNECTOR (1.5MM)(SMD) 3P	
		(DIODE)	
D501	8-719-420-14	DIODE MA8082-M	
D502	8-719-420-14	DIODE MA8082-M	
D503	8-719-420-14	DIODE MA8082-M	
D504	8-719-420-14	DIODE MA8082-M	
D505	8-719-404-46	DIODE MA110	
		(JACK)	
J501	1-569-809-11	JACK (SMALL TYPE)(PHONES)	
		(COIL)	
L501	1-410-369-11	INDUCTOR CHIP 1uH	
L502	1-410-369-11	INDUCTOR CHIP 1uH	
L503	1-410-369-11	INDUCTOR CHIP 1uH	

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Ref. No.	Part No.	Description	Remark
*	A-7071-628-A	LJ-6P BOARD, COMPLETE	
		**********************	
		(Ref.No 5,000 Series)	
		(CAPACITOR)	
C511	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C513	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		(CONNECTOR)	
CN511	1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P	
		(DIODE)	
D511	8-719-106-71	DIODE RD12M-B2	
D512	8-719-420-14	DIODE MA8082-M	
D513	8-719-404-46	DIODE MA110	
		(JACK)	
J511	1-565-276-21	JACK, ULTRA SMALL 1P (REMOTE)	
		(COIL)	
L511	1-410-369-11	INDUCTOR CHIP 1uH	
L512	1-410-369-11	INDUCTOR CHIP 1uH	
L513	1-410-369-11	INDUCTOR CHIP 1uH	
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*	A-7063-221-A	MA-109P BOARD, COMPLETE	
		************************	
		(Ref.No 7,000 Series)	
	3-947-195-01	PLATE, GROUND, MC	
		(CAPACITOR)	
C901	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C902	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
C903	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C904	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
C905	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C906	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C907	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C908	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
C909	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C910	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C911	1-162-638-11	CERAMIC CHIP 1uF 16V	
C912	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C913	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C914	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C915	1-164-222-11	CERAMIC CHIP 0.22uF 25V	
C916	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C917	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C918	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C919	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C920	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C921	1-162-638-11	CERAMIC CHIP 1uF 16V	
C922	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C923	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C924	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C925	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C926	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C927	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C928	1-164-346-11	CERAMIC CHIP 1uF 16V	
C929	1-164-346-11	CERAMIC CHIP 1uF 16V	
C930	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C931	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C932	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C933	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C934	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C935	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C936	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C937	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C938	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C939	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C940	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C941	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C942	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C943	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C944	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C945	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C946	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C947	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C948	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C949	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C950	1-163-989-11	CERAMIC CHIP 0.033uF 10% 25V	
C951	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C952	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C953	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C954	1-164-173-11	CERAMIC CHIP 0.0039uF 10% 50V	
C956	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C957	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C959	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C960	1-163-989-11	CERAMIC CHIP 0.033uF 10% 25V	
C961	1-163-989-11	CERAMIC CHIP 0.033uF 10% 25V	
C962	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C963	1-163-989-11	CERAMIC CHIP 0.033uF 10% 25V	
C964	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C965	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C966	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C967	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C969	1-163-833-00	CERAMIC CHIP 0.068uF 25V	
C970	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C971	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C972	1-164-670-11	CERAMIC CHIP 1200PF 5% 16V	

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Ref. No.	Part No.	Description	Remark
C973	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C974	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C975	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C976	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C977	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C980	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C981	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C982	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		(CONNECTOR)	
CN901	1-691-591-11	PIN, CONNECTOR (1.5MM) (SMD)8P	
CN902	1-691-591-11	PIN, CONNECTOR (1.5MM) (SMD)8P	
CN903	1-691-550-11	PIN, CONNECTOR (1.5MM) (SMD)3P	
		(DIODE)	
D901	8-719-404-46	DIODE MA110	
D902	8-719-404-46	DIODE MA110	
D903	8-719-404-46	DIODE MA110	
		(IC)	
IC901	8-759-057-79	IC LA7470V	
IC902	8-759-710-79	IC NJM2107F	
		(JACK)	
J901	1-569-810-11	JACK (SMALL TYPE)(MIC)	
		(COIL)	
L901	1-410-993-11	INDUCTOR CHIP 1uH	
L902	1-410-993-11	INDUCTOR CHIP 1uH	
L903	1-410-993-11	INDUCTOR CHIP 1uH	
		(TRANSISTOR)	
Q901	8-729-015-63	TRANSISTOR XN4556-(TX)	
Q902	8-729-015-63	TRANSISTOR XN4556-(TX)	
Q903	8-729-010-80	TRANSISTOR FC13	
Q904	8-729-822-97	TRANSISTOR 2SC4211-5.6.7	
Q905	8-729-822-94	TRANSISTOR FC102	
Q906	8-729-822-97	TRANSISTOR 2SC4211-5.6.7	
Q907	8-729-822-48	TRANSISTOR FC101	
Q908	8-729-402-42	TRANSISTOR UN5213	
Q909	8-729-822-97	TRANSISTOR 2SC4211-5.6.7	
Q910	8-729-822-94	TRANSISTOR FC102	
Q911	8-729-015-63	TRANSISTOR XN4556-(TX)	
Q912	8-729-822-48	TRANSISTOR FC101	
Q913	8-729-905-23	TRANSISTOR 2SA1576-R	
Q914	8-729-822-94	TRANSISTOR FC102	
Q915	8-729-822-94	TRANSISTOR FC102	
Q917	8-729-403-35	TRANSISTOR UN5113	
Q918	8-729-822-48	TRANSISTOR FC101	

Ref. No.	Part No.	Description	Remark
Q921	8-729-015-63	TRANSISTOR XN4556-(TX)	
Q922	8-729-822-48	TRANSISTOR FC101	
Q923	8-729-905-23	TRANSISTOR 2SA1576-R	
Q924	8-729-822-94	TRANSISTOR FC102	
Q925	8-729-822-94	TRANSISTOR FC102	
Q927	8-729-403-35	TRANSISTOR UN5113	
Q930	8-729-403-35	TRANSISTOR UN5113	
		(RESISTOR)	
R892	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R893	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R894	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R895	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R896	1-216-864-11	METAL CHIP 0 5% 1/16W	
R897	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R898	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R899	1-216-864-11	METAL CHIP 0 5% 1/16W	
R901	1-216-817-11	METAL CHIP 470 5% 1/16W	
R902	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R903	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R904	1-216-856-11	METAL CHIP 820K 5% 1/16W	
R905	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R906	1-216-818-11	METAL CHIP 560 5% 1/16W	
R907	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R908	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R909	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R910	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R911	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R912	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R913	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R914	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R915	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R916	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R917	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R918	1-216-846-11	METAL CHIP 120K 5% 1/16W	
R919	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R920	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R921	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R922	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R923	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R924	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R925	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R926	1-216-818-11	METAL CHIP 560 5% 1/16W	
R927	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R928	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R929	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R930	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R931	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R933	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R934	1-216-847-11	METAL CHIP 150K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R935	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R936	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R937	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R938	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R939	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R940	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R941	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R942	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R943	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R944	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R945	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R946	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R947	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R948	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R949	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R950	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R951	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R952	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R953	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R954	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R955	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R956	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R957	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R958	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R959	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R960	1-216-855-11	METAL CHIP 680K 5% 1/16W	
R961	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R963	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R964	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R965	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R966	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R967	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R968	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R969	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R970	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R971	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R972	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R973	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R974	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R975	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R976	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R977	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R978	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R979	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R980	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R981	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R982	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R983	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R984	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R985	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R986	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R987	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R988	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R989	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R990	1-216-855-11	METAL CHIP 680K 5% 1/16W	
R991	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R992	1-216-864-11	METAL CHIP 0 5% 1/16W	
R993	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R994	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R995	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R996	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R997	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R998	1-216-846-11	METAL CHIP 120K 5% 1/16W	
R999	1-216-864-11	METAL CHIP 0 5% 1/16W	

(VARIABLE RESISTOR)

Ref. No.	Part No.	Description	Remark
RV901	1-238-854-11	RES, ADJ, CERMET 2.2K	

(SWITCH)

Ref. No.	Part No.	Description	Remark
S901	1-572-497-11	SWITCH, SLIDE (BUILT-IN MIC)	
S902	1-571-684-11	SWITCH, TACTIL (FADER)	

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* A-7071-629-A RM-54P BOARD, COMPLETE

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(Ref.No 4,000 Series)

(CAPACITOR)

Ref. No.	Part No.	Description	Remark
C401	1-135-217-21	TANTALUM CHIP 15uF 20% 6.3V	

(IC)

Ref. No.	Part No.	Description	Remark
IC401	8-749-923-29	IC RS-20E-T	

(RESISTOR)

Ref. No.	Part No.	Description	Remark
R401	1-216-017-00	METAL CHIP 47 5% 1/10W	

(SWITCH)

Ref. No.	Part No.	Description	Remark
S401	1-692-043-11	SWITCH, PUSH (1 KEY) (REMOTE COMMANDER ON/OFF)	

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* A-7063-218-A SE-22P BOARD, COMPLETE

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(Ref.No 1,000 Series)

(CAPACITOR)

Ref. No.	Part No.	Description	Remark
C101	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C102	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C103	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C104	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C105	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	

Ref. No.	Part No.	Description	Remark
C106	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C107	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
C108	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
C109	1-126-470-11	ELECT 33uF 20% 6.3V	
C110	1-126-470-11	ELECT 33uF 20% 6.3V	
C111	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C112	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C113	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C114	1-135-318-11	TANTAL. CHIP 33uF 20% 4V	
C115	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C116	1-135-161-21	TANTALUM CHIP 22uF 10% 10V	
C117	1-135-318-11	TANTAL. CHIP 33uF 20% 4V	
C119	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C121	1-135-161-21	TANTALUM CHIP 22uF 10% 10V	

(CONNECTOR)

Ref. No.	Part No.	Description	Remark
CN101	1-691-516-11	CONNECTOR, BOARD TO BOARD 24P	

(IC)

Ref. No.	Part No.	Description	Remark
IC101	8-759-998-98	IC LM358D	
IC102	8-759-981-75	IC RC3403AM	
IC103	8-759-234-77	IC TC4S66F	
IC104	8-759-234-77	IC TC4S66F	

(RESISTOR)

Ref. No.	Part No.	Description	Remark
R101	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R102	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R103	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R104	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R105	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R106	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R107	1-218-768-11	METAL CHIP 470K 0.50% 1/10W	
R108	1-218-768-11	METAL CHIP 470K 0.50% 1/10W	
R109	1-216-013-00	METAL CHIP 33 5% 1/10W	
R110	1-216-013-00	METAL CHIP 33 5% 1/10W	
R111	1-216-013-00	METAL CHIP 33 5% 1/10W	
R112	1-216-013-00	METAL CHIP 33 5% 1/10W	
R113	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R115	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R116	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R117	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R118	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R119	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R120	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R122	1-218-768-11	METAL CHIP 470K 0.50% 1/10W	
R123	1-218-768-11	METAL CHIP 470K 0.50% 1/10W	

(FLAT CABLE)

Ref. No.	Part No.	Description	Remark
W101	1-642-239-11	FP-486 FLEXIBLE BOARD	

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Ref. No.	Part No.	Description	Remark
*	A-7063-216-A	VC-126 BOARD, COMPLETE	

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(Ref.No 2,000 Series)

(CAPACITOR)

Ref. No.	Part No.	Description	Remark
C701	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C703	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C704	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C705	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C706	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C707	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C708	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C709	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C710	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C712	1-162-638-11	CERAMIC CHIP 1uF 16V	
C713	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C714	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C715	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C717	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C718	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C720	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C721	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C722	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C723	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
C724	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C725	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C726	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C727	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C728	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C730	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C731	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C735	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C737	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C738	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C741	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C742	1-162-943-11	CERAMIC CHIP 15PF 5% 50V	
C743	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C744	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C745	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C746	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C747	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C748	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C801	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C802	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C803	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C804	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C805	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C806	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C807	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C808	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	

Ref. No.	Part No.	Description	Remark
C809	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C810	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C811	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C813	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C814	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C815	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C816	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C817	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C818	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C819	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C820	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C821	1-162-947-11	CERAMIC CHIP 33PF 5% 50V	
C823	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C826	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C827	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C830	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C832	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C833	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C834	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C835	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C836	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C837	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C839	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C841	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C845	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C846	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C851	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C853	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C854	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C855	1-135-161-21	TANTALUM CHIP 22uF 10% 10V	
C856	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C857	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C858	1-164-315-11	CERAMIC CHIP 470PF 5% 50V	
C859	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C860	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C861	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C862	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C863	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C865	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C866	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C867	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C868	1-162-638-11	CERAMIC CHIP 1uF 16V	
C869	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C870	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C872	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C873	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C874	1-165-112-11	CERAMIC CHIP 0.33uF 16V	
C921	1-164-346-11	CERAMIC CHIP 1uF 16V	
C922	1-164-346-11	CERAMIC CHIP 1uF 16V	
C923	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	

Ref. No.	Part No.	Description	Remark
C925	1-162-995-11	CERAMIC CHIP 0.022uF 50V	
C927	1-162-995-11	CERAMIC CHIP 0.022uF 50V	
C928	1-162-995-11	CERAMIC CHIP 0.022uF 50V	
C929	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C930	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C931	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C932	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C933	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C934	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C935	1-162-920-11	CERAMIC CHIP 27PF 5% 50V	
C936	1-164-237-11	CERAMIC CHIP 16PF 5% 50V	
C937	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C938	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C939	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C940	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C941	1-162-961-11	CERAMIC CHIP 330PF 10% 50V	
C942	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C945	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C947	1-162-638-11	CERAMIC CHIP 1uF 16V	
C948	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C949	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C950	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	

(CONNECTOR)

CN701	1-691-920-11	CONNECTOR, BOARD TO BOARD 18P	
CN801	1-573-523-21	CONNECTOR, BOARD TO BOARD 16P	
CN851	1-573-930-21	CONNECTOR, FFC/FPC (ZIF) 21P	
CN922	1-691-552-11	CONNECTOR, BOARD TO BOARD 48P	
CN923	1-573-293-21	PIN, CONNECTOR (1.5MM) (SMD) 2P	
CN924	1-573-371-21	CONNECTOR, BOARD TO BOARD 14P	
CN925	1-580-056-21	PIN, CONNECTOR 3P	

(TRIMMER)

CT801	1-141-356-11	CAP, ADJ	

(DIODE)

D702	8-719-404-46	DIODE MA110	
D923	8-719-404-46	DIODE MA110	
D924	8-719-404-46	DIODE MA110	
D925	8-719-404-46	DIODE MA110	
D927	8-719-404-46	DIODE MA110	
D929	8-719-421-27	DIODE MA728	

(FILTER)

FL701	1-236-759-21	FILTER, LOW PASS (TRAP)	
FL702	1-415-731-21	DELAY LINE, LC (YH)	
FL921	1-406-452-11	COIL, OSC	

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〈 IC 〉

Ref. No.	Part No.	Description	Remark
IC701	8-759-044-78	IC AK6420F	
IC702	8-752-837-51	IC CXP80624-297Q	
IC703	8-752-337-36	IC CXD2104N	
IC705	8-759-064-36	IC MB88346BPFV	
IC706	8-759-069-18	IC CXD2103AR	
IC707	8-759-519-14	IC MB8464-15LLPFTN	
IC708	8-752-347-93	IC CXD2100AQ	
IC709	8-759-518-81	IC CXD2112R	
IC710	8-752-348-92	IC CXD2101AR	
IC711	8-759-243-19	IC TC7SU04F	
IC801	8-752-341-09	IC CXD1256R	
IC802	8-752-056-39	IC CXA1507BR	
IC803	8-752-053-26	IC CXA1399Q	
IC804	8-752-327-48	IC CXD1250N	
IC805	8-752-054-61	IC CXA1390AR	
IC851	8-759-513-26	IC XRU5846FS	
IC852	8-759-701-24	IC NJM3414M	
IC853	8-759-998-96	IC LM324D	
IC854	8-759-059-08	IC LC78865M	
IC855	8-759-038-81	IC MPC1724M	
IC856	8-759-823-51	IC LB1830M	
IC921	8-759-937-54	IC S-81250HG-RD-S	
IC922	8-759-511-22	IC CXA1448N	
IC923	8-759-044-78	IC AK6420F	
IC924	8-759-080-18	IC uPD75316GF-289-3B9	
IC925	8-759-999-02	IC TL1596CDB	
IC926	8-759-145-63	IC uPD7564G-540	
IC927	8-759-069-29	IC uPD6456GS-618	

〈 COIL 〉

Ref. No.	Part No.	Description	Remark
L701	1-412-006-31	INDUCTOR CHIP 10uH	
L702	1-412-058-11	INDUCTOR CHIP 10uH	
L703	1-412-006-31	INDUCTOR CHIP 10uH	
L704	1-412-006-31	INDUCTOR CHIP 10uH	
L705	1-412-058-11	INDUCTOR CHIP 10uH	
L706	1-412-062-11	INDUCTOR CHIP 47uH	
L707	1-412-006-31	INDUCTOR CHIP 10uH	
L708	1-412-006-31	INDUCTOR CHIP 10uH	
L711	1-410-391-11	INDUCTOR CHIP 68uH	
L712	1-412-006-31	INDUCTOR CHIP 10uH	
L714	1-412-052-21	INDUCTOR CHIP 1uH	
L715	1-412-979-21	INDUCTOR 1uH	
L716	1-412-979-21	INDUCTOR 1uH	
L717	1-412-052-21	INDUCTOR CHIP 1uH	
L718	1-412-052-21	INDUCTOR CHIP 1uH	
L719	1-412-006-31	INDUCTOR CHIP 10uH	
L720	1-412-006-31	INDUCTOR CHIP 10uH	
L721	1-410-993-11	INDUCTOR CHIP 1uH	
L801	1-412-058-11	INDUCTOR CHIP 10uH	
L802	1-412-006-31	INDUCTOR CHIP 10uH	
L803	1-412-058-11	INDUCTOR CHIP 10uH	
L804	1-412-058-11	INDUCTOR CHIP 10uH	
L852	1-412-032-11	INDUCTOR CHIP 100uH	
L853	1-412-058-11	INDUCTOR CHIP 10uH	
L854	1-412-062-11	INDUCTOR CHIP 47uH	
L921	1-410-389-31	INDUCTOR CHIP 47uH	
L922	1-412-052-21	INDUCTOR CHIP 1uH	
L923	1-412-052-21	INDUCTOR CHIP 1uH	
L924	1-412-058-11	INDUCTOR CHIP 10uH	
L926	1-412-006-31	INDUCTOR CHIP 10uH	

〈 IC LINK 〉

Ref. No.	Part No.	Description	Remark
⚠PS921	1-576-122-21	LINK, IC CCP2E10 0.4A	

〈 TRANSISTOR 〉

Ref. No.	Part No.	Description	Remark
Q701	8-729-905-61	TRANSISTOR DTC124EU	
Q703	8-729-402-42	TRANSISTOR UN5213	
Q706	8-729-010-60	TRANSISTOR MSA1586-BC	
Q707	8-729-010-60	TRANSISTOR MSA1586-BC	
Q708	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q709	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q710	8-729-402-84	TRANSISTOR XN4601	
Q801	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q802	8-729-403-27	TRANSISTOR XN4401	
Q853	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q854	8-729-907-00	TRANSISTOR DTC114EU	
Q855	8-729-403-27	TRANSISTOR XN4401	
Q921	8-729-905-99	TRANSISTOR DTC114TU	
Q922	8-729-905-99	TRANSISTOR DTC114TU	
Q923	8-729-907-00	TRANSISTOR DTC114EU	
Q925	8-729-403-35	TRANSISTOR UN5113	
Q926	8-729-905-99	TRANSISTOR DTC114TU	

〈 RESISTOR 〉

Ref. No.	Part No.	Description	Remark
R701	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R702	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R703	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R704	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R705	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R706	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R707	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R708	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R709	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R710	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R711	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R712	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R719	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R720	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R721	1-216-821-11	METAL CHIP 1K 5% 1/16W	

Ref. No.	Part No.	Description				Remark
R726	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R730	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R732	1-216-864-11	METAL CHIP	0	5%	1/16W	
R734	1-216-814-11	METAL CHIP	270	5%	1/16W	
R735	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R736	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R737	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R738	1-216-863-11	METAL GLAZE	3. 3M	5%	1/16W	
R739	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R740	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R741	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R743	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R745	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R746	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R747	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R748	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R749	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R750	1-216-815-11	METAL CHIP	330	5%	1/16W	
R751	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R752	1-216-864-11	METAL CHIP	0	5%	1/16W	
R755	1-216-816-11	METAL CHIP	390	5%	1/16W	
R756	1-216-816-11	METAL CHIP	390	5%	1/16W	
R763	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R764	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R766	1-216-820-11	METAL CHIP	820	5%	1/16W	
R767	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W	
R768	1-216-864-11	METAL CHIP	0	5%	1/16W	
R769	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R770	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R771	1-216-823-11	METAL CHIP	1. 5K	5%	1/16W	
R772	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R773	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W	
R774	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R775	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R776	1-216-814-11	METAL CHIP	270	5%	1/16W	
R777	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R778	1-216-829-11	METAL CHIP	4. 7K	5%	1/16W	
R779	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R780	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R782	1-216-864-11	METAL CHIP	0	5%	1/16W	
R783	1-216-309-00	METAL CHIP	5. 6	5%	1/10W	
R785	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R786	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R787	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R788	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R789	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R790	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R801	1-216-864-11	METAL CHIP	0	5%	1/16W	
R802	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R803	1-216-823-11	METAL CHIP	1. 5K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R804	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R805	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R808	1-216-801-11	METAL CHIP	22	5%	1/16W	
R809	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R810	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R812	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R813	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R814	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R819	1-216-805-11	METAL CHIP	47	5%	1/16W	
R821	1-216-859-11	METAL GLAZE	1. 5M	5%	1/16W	
R823	1-218-721-11	METAL CHIP	16K	0. 50%	1/16W	
R825	1-216-832-11	METAL CHIP	8. 2K	5%	1/16W	
R830	1-218-847-11	METAL CHIP	1K	0. 50%	1/16W	
R831	1-216-818-11	METAL CHIP	560	5%	1/16W	
R832	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R833	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R835	1-216-823-11	METAL CHIP	1. 5K	5%	1/16W	
R853	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R854	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R855	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R856	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R857	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R858	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R859	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R860	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R861	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R862	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R863	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R864	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W	
R865	1-216-820-11	METAL CHIP	820	5%	1/16W	
R867	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R868	1-216-826-11	METAL CHIP	2. 7K	5%	1/16W	
R869	1-216-848-11	METAL CHIP	180K	5%	1/16W	
R870	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R871	1-216-855-11	METAL CHIP	680K	5%	1/16W	
R872	1-216-848-11	METAL CHIP	180K	5%	1/16W	
R873	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R874	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W	
R875	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R876	1-216-816-11	METAL CHIP	390	5%	1/16W	
R877	1-216-134-00	METAL CHIP	2. 2	5%	1/8W	
R878	1-216-829-11	METAL CHIP	4. 7K	5%	1/16W	
R879	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R880	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R921	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R922	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R924	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R925	1-216-813-11	METAL CHIP	220	5%	1/16W	
R926	1-216-813-11	METAL CHIP	220	5%	1/16W	
R927	1-216-821-11	METAL CHIP	1K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R928	1-216-864-11	METAL CHIP	0	5%	1/16W	
R929	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R930	1-216-813-11	METAL CHIP	220	5%	1/16W	
R931	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R932	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R933	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R934	1-216-813-11	METAL CHIP	220	5%	1/16W	
R935	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R936	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R938	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R939	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R941	1-216-861-11	METAL CHIP	2.2M	5%	1/16W	
R942	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R943	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R944	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R945	1-218-857-11	METAL CHIP	2.7K	0.50%	1/16W	
R946	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R947	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R948	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R949	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R950	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R951	1-216-809-11	METAL CHIP	100	5%	1/16W	
R952	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R954	1-216-814-11	METAL CHIP	270	5%	1/16W	
R955	1-216-817-11	METAL CHIP	470	5%	1/16W	
R957	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R958	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R959	1-216-296-00	METAL CHIP	0	5%	1/8W	
R960	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R961	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R962	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R963	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R964	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R965	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R966	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R967	1-216-809-11	METAL CHIP	100	5%	1/16W	
R968	1-216-809-11	METAL CHIP	100	5%	1/16W	
R969	1-216-809-11	METAL CHIP	100	5%	1/16W	
		(CONPOSITION CIRCUIT BLOCK)				
RB701	1-236-432-11	NETWORK, RES 47K				
RB921	1-236-904-11	RESISTOR, NETWORK (CHIP TYPE)				
RB922	1-236-904-11	RESISTOR, NETWORK (CHIP TYPE)				
RB923	1-236-432-11	NETWORK, RES 47K				
RB924	1-236-412-11	NETWORK, RES 1.0K				
RB925	1-236-904-11	RESISTOR, NETWORK (CHIP TYPE)				
RB926	1-236-904-11	RESISTOR, NETWORK (CHIP TYPE)				
RB927	1-236-908-11	RESISTOR, NETWORK (CHIP TYPE)				
RB928	1-236-908-11	RESISTOR, NETWORK (CHIP TYPE)				
RB929	1-236-904-11	RESISTOR, NETWORK (CHIP TYPE)				

Ref. No.	Part No.	Description				Remark
RB930	1-236-907-11	RESISTOR, NETWORK (CHIP TYPE)				
RB931	1-236-907-11	RESISTOR, NETWORK (CHIP TYPE)				
RB932	1-236-405-11	NETWORK, RES 270				
RB935	1-236-416-11	NETWORK, RES 2.2K				
RB937	1-236-432-11	NETWORK, RES 47K				
		(FLAT CABLE)				
W701	1-642-240-12	FP-518 FLEXIBLE BOARD				
W926	1-642-235-11	FP-481 FLEXIBLE BOARD				
		(VIBRATOR)				
X701	1-579-553-11	VIBRATOR (10MHz)				
X801	1-579-076-11	VIBRATOR, CRYSTAL (28.375MHz)				
X921	1-579-063-21	VIBRATOR, CERAMIC (4.19MHz)				
X922	1-579-550-11	VIBRATOR, CRYSTAL (32KHz)				
X923	1-579-551-11	VIBRATOR, CERAMIC (700KHz)				

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Ref. No.	Part No.	Description				Remark
*	A-7063-219-A	VD-21P BOARD, COMPLETE				
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		(Ref.No 1,000 Series)				
		(CAPACITOR)				
C001	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V	
C002	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C003	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C004	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C005	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C006	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C007	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C008	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C009	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C010	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C011	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C012	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C013	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C014	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C017	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C018	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C019	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C020	1-135-091-00	TANTALUM CHIP	1uF	20%	16V	
C021	1-164-222-11	CERAMIC CHIP	0.22uF		25V	
C022	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V	
C023	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C024	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V	
C025	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V	
C027	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V	
C028	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C029	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V	
C030	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V	
C033	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C034	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	

Ref. No.	Part No.	Description	Remark
C035	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
		(CONNECTOR)	
CN001	1-691-536-11	CONNECTOR, BOARD TO BOARD 24P	
CN002	1-691-513-11	CONNECTOR, BOARD TO BOARD 12P	
CN003	1-580-057-11	PIN, CONNECTOR 4P	
		(IC)	
IC001	8-759-701-24	IC NJM3414M	
IC002	8-759-998-96	IC LM324D	
IC003	8-759-981-75	IC RC3403AM	
IC004	8-759-701-24	IC NJM3414M	
IC005	8-759-058-98	IC SC370605DR	
IC006	8-752-837-53	IC CXP80624-296Q	
IC007	8-759-500-11	IC MM1036XF	
		(COIL)	
L001	1-412-006-31	INDUCTOR CHIP 10uH	
L002	1-412-006-31	INDUCTOR CHIP 10uH	
L003	1-412-058-11	INDUCTOR CHIP 10uH	
L004	1-412-006-31	INDUCTOR CHIP 10uH	
		(TRANSISTOR)	
Q001	8-729-920-99	TRANSISTOR DTA114EU	
Q002	8-729-402-78	TRANSISTOR XN6401	
Q003	8-729-402-42	TRANSISTOR UN5213	
		(RESISTOR)	
R001	1-216-031-00	METAL CHIP 180 5% 1/10W	
R002	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R003	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R004	1-218-740-11	METAL CHIP 100K 0.50% 1/16W	
R005	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R006	1-218-708-11	METAL CHIP 4.7K 0.50% 1/16W	
R007	1-218-736-11	METAL CHIP 68K 0.50% 1/16W	
R008	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R009	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R010	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R011	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R012	1-218-736-11	METAL CHIP 68K 0.50% 1/16W	
R013	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R014	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R015	1-218-740-11	METAL CHIP 100K 0.50% 1/16W	
R016	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R017	1-218-740-11	METAL CHIP 100K 0.50% 1/16W	
R018	1-218-740-11	METAL CHIP 100K 0.50% 1/16W	
R019	1-218-708-11	METAL CHIP 4.7K 0.50% 1/16W	
R020	1-218-740-11	METAL CHIP 100K 0.50% 1/16W	
R021	1-218-748-11	METAL CHIP 220K 0.50% 1/16W	
R022	1-218-748-11	METAL CHIP 220K 0.50% 1/16W	

Ref. No.	Part No.	Description	Remark
R023	1-218-740-11	METAL CHIP 100K 0.50% 1/16W	
R024	1-218-732-11	METAL CHIP 47K 0.50% 1/16W	
R025	1-218-732-11	METAL CHIP 47K 0.50% 1/16W	
R029	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R030	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R031	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R032	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R033	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R034	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R035	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R036	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R037	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R038	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R039	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R040	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R041	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R042	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R044	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R045	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R047	1-216-814-11	METAL CHIP 270 5% 1/16W	
R052	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R053	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R054	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R055	1-216-789-11	METAL CHIP 2.2 5% 1/16W	
R056	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R057	1-218-688-11	METAL CHIP 680 0.50% 1/16W	
R058	1-218-688-11	METAL CHIP 680 0.50% 1/16W	
		(VIBRATOR)	
X001	1-579-553-11	VIBRATOR	

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* A-7063-220-A VF-42P BOARD, COMPLETE

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(Ref.No 8,000 Series)

Ref. No.	Part No.	Description	Remark
	3-942-888-01	HOLDER, LED	
		(CAPACITOR)	
C501	1-126-176-11	ELECT 220uF 20% 10V	
C502	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C503	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C504	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
⚠C505	1-164-758-11	CERAMIC CHIP 0.0039uF 5% 50V	
C506	1-164-715-11	CERAMIC CHIP 0.0068uF 5% 50V	
C507	1-127-515-11	ELECT(SOLID) 47uF 20% 6.3V	
C508	1-164-611-11	CERAMIC CHIP 0.001uF 10% 500V	
C509	1-124-257-00	ELECT 2.2uF 20% 50V	
C510	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C511	1-126-090-11	ELECT 82uF 20% 10V	
C512	1-137-306-11	FILM CHIP 0.1uF 5% 16V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
C513	1-164-299-11	CERAMIC CHIP 0.22uF 10% 25V	
C514	1-131-381-00	TANTALUM 47uF 10% 10V	
C515	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C516	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
		(CONNECTOR)	
* CN501	1-566-759-11	PIN, CONNECTOR (PC BOARD) 4P	
* CN502	1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	
* CN503	1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	
		(DIODE)	
D501	8-719-820-65	DIODE TLS221	
D502	8-719-984-02	LED BR4371F	
D503	8-719-400-20	DIODE MA152WA	
		(IC)	
IC501	8-759-420-01	IC AN2512S	
		(COIL)	
L501	1-408-976-21	INDUCTOR 33uH	
L502	1-408-785-21	INDUCTOR CHIP 47uH	
⚠L503	1-459-876-41	COIL, FERRITE (HLC)	
		(TRANSISTOR)	
Q501	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q502	8-729-216-31	TRANSISTOR 2SA1163-G	
Q504	8-729-106-68	TRANSISTOR 2SD1615A-GP	
		(RESISTOR)	
R501	1-216-033-00	METAL CHIP 220 5% 1/10W	
R502	1-216-041-00	METAL CHIP 470 5% 1/10W	
R503	1-216-041-00	METAL CHIP 470 5% 1/10W	
R506	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R507	1-216-047-00	METAL CHIP 820 5% 1/10W	
R508	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R509	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R510	1-216-005-00	METAL CHIP 15 5% 1/10W	
R511	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R512	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R513	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R514	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R515	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R516	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R517	1-216-025-00	METAL CHIP 100 5% 1/10W	
R518	1-216-308-00	METAL CHIP 4.7 5% 1/10W	
R519	1-216-336-11	METAL CHIP 47K 1% 1/10W	
R520	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R521	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R522	1-216-160-00	METAL GLAZE 27 5% 1/8W	

Ref. No.	Part No.	Description	Rema
R523	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R524	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R525	1-216-097-00	METAL CHIP 100K 5% 1/10W	
		(VARIABLE RESISTOR)	
RV501	1-241-596-11	RES, ADJ, METAL GLAZE 47K	
RV502	1-241-590-11	RES, ADJ, METAL GLAZE 470	
RV503	1-241-592-11	RES, ADJ, METAL GLAZE 2.2K	
RV504	1-228-762-00	RES, ADJ, METAL GLAZE 1M	
		(TRANSFORMER)	
⚠T501	1-439-486-11	TRANSFORMER ASSY, FLYBACK	
		(THERMISTOR)	
TH501	1-809-350-21	THERMISTOR, NTC (2125)	
		(FLAT CABLE)	
⚠W501	1-540-019-21	SOCKET ASSY, CRT	

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Ref. No.	Part No.	Description	Rema
*	A-7063-215-A	VS-98 BOARD, COMPLETE	
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		(Ref.No 3,000 Series)	
	1-630-591-11	FP-182 FLEXIBLE BOARD	
*	3-946-452-01	CASE (UPPER), SHIELD, RP	
*	3-946-453-01	CASE (LOWER), SHIELD, RP	
		(CAPACITOR)	
C002	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C003	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C004	1-162-926-11	CERAMIC CHIP 82PF 5% 50V	
C005	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C006	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C008	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C009	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C011	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C012	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C013	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C014	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C015	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C016	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C017	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C018	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C019	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C020	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C021	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C022	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C023	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C024	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C025	1-164-360-11	CERAMIC CHIP 0.1uF 16V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
C026	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C027	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C028	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C029	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C030	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C031	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C032	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C034	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C035	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C036	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C037	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C038	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C039	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C040	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C041	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C043	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C044	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C046	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C047	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C048	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C049	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C050	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C051	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C052	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C053	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C054	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C055	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C056	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C057	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C058	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C059	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C060	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C061	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C062	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C071	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C072	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C073	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C074	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C075	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C076	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C077	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C078	1-164-145-11	CERAMIC CHIP	390PF	5%	50V
C079	1-162-976-11	CERAMIC CHIP	75PF	5%	50V
C080	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C081	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C082	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C083	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C084	1-162-909-11	CERAMIC CHIP	4PF	0.25PF	50V
C085	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C086	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C087	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C088	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C089	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C090	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C091	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C092	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C094	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C095	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C096	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C097	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C098	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C099	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C100	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C102	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C103	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C104	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C105	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C106	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C107	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C108	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C109	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C110	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C111	1-164-383-11	CERAMIC CHIP	110PF	5%	50V
C113	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C114	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C115	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C116	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C117	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C119	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C120	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C121	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C122	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C123	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C124	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C125	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C126	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C127	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C128	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C129	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C130	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C131	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C132	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C133	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C134	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C135	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C136	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C151	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C152	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C153	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C154	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V

Ref. No.	Part No.	Description				Remark
C155	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C156	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C157	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C158	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C159	1-135-091-00	TANTALUM CHIP	1uF	20%	16V	
C160	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C161	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C162	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C163	1-163-833-00	CERAMIC CHIP	0.068uF		25V	
C164	1-163-833-00	CERAMIC CHIP	0.068uF		25V	
C165	1-164-634-11	CERAMIC CHIP	1uF		16V	
C166	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C167	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C168	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C169	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C170	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C171	1-162-911-11	CERAMIC CHIP	6PF	0.5PF	50V	
C172	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C173	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C174	1-162-916-11	CERAMIC CHIP	12PF	5%	50V	
C175	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C176	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C177	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C178	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C179	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C180	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C181	1-164-222-11	CERAMIC CHIP	0.22uF		25V	
C182	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C183	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C184	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C187	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C188	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C189	1-162-995-11	CERAMIC CHIP	0.022uF		50V	
C191	1-164-634-11	CERAMIC CHIP	1uF		16V	
C192	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V	
C193	1-164-634-11	CERAMIC CHIP	1uF		16V	
C194	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V	
C195	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C196	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C197	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C198	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C199	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C200	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	
C201	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	
C202	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C203	1-162-995-11	CERAMIC CHIP	0.022uF		50V	
C204	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C205	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C206	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C207	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C208	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C209	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C210	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C211	1-164-222-11	CERAMIC CHIP	0.22uF		25V	
C212	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C213	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C214	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C215	1-162-995-11	CERAMIC CHIP	0.022uF		50V	
C216	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V	
C219	1-164-634-11	CERAMIC CHIP	1uF		16V	
C220	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C221	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C222	1-164-634-11	CERAMIC CHIP	1uF		16V	
C223	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C224	1-164-634-11	CERAMIC CHIP	1uF		16V	
C225	1-164-217-11	CERAMIC CHIP	150PF	5%	50V	
C226	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V	
C227	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C261	1-164-315-11	CERAMIC CHIP	470PF	5%	50V	
C262	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C263	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C264	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C265	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C266	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C267	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C268	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C269	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C270	1-162-926-11	CERAMIC CHIP	82PF	5%	50V	
C271	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C273	1-162-923-11	CERAMIC CHIP	47PF	5%	50V	
C274	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C275	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C276	1-164-361-11	CERAMIC CHIP	0.047uF		16V	
C277	1-162-918-11	CERAMIC CHIP	18PF	5%	50V	
C278	1-162-918-11	CERAMIC CHIP	18PF	5%	50V	
C279	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C280	1-164-361-11	CERAMIC CHIP	0.047uF		16V	
C281	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C282	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C283	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C292	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C293	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C301	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C302	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C303	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C304	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C305	1-164-634-11	CERAMIC CHIP	1uF		16V	
C306	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C307	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C308	1-162-971-11	CERAMIC CHIP	0.001uF		50V	

Ref. No.	Part No.	Description				Remark
C309	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C310	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C311	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C312	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C313	1-126-246-11	ELECT CHIP	220uF	20%	4V	
C314	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C315	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C316	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C317	1-162-918-11	CERAMIC CHIP	18PF	5%	50V	
C319	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C320	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V	
C321	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C322	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C323	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C324	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C325	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C326	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C327	1-164-634-11	CERAMIC CHIP	1uF		16V	
C351	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C352	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	
C353	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V	
C354	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C355	1-135-091-00	TANTALUM CHIP	1uF	20%	16V	
C356	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C357	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C358	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C359	1-163-118-00	CERAMIC CHIP	110PF	5%	50V	
C360	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C361	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C362	1-162-959-11	CERAMIC CHIP	330PF	5%	50V	
C363	1-164-145-11	CERAMIC CHIP	390PF	5%	50V	
C364	1-162-936-11	CERAMIC CHIP	5PF	0.25PF	50V	
C365	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C366	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C367	1-162-947-11	CERAMIC CHIP	33PF	5%	50V	
C368	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C401	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C402	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C403	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C404	1-162-947-11	CERAMIC CHIP	33PF	5%	50V	
C405	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C406	1-164-634-11	CERAMIC CHIP	1uF		16V	
C407	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C408	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C409	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C410	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C411	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C412	1-126-246-11	ELECT CHIP	220uF	20%	4V	
C413	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V	
C414	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C415	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C416	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C417	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C418	1-164-471-11	CERAMIC CHIP	680PF	5%	50V	
C419	1-135-162-21	TANTALUM CHIP	33uF	20%	6.3V	
C420	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C421	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C422	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C423	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C424	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C425	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C426	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C427	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	
C428	1-162-952-11	CERAMIC CHIP	82PF	5%	50V	
C429	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C430	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C431	1-162-942-11	CERAMIC CHIP	12PF	5%	50V	
C432	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C433	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C434	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C435	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C436	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C437	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C438	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C439	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C440	1-162-945-11	CERAMIC CHIP	22PF	5%	50V	
C441	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V	
C442	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C443	1-162-946-11	CERAMIC CHIP	27PF	5%	50V	
C444	1-162-956-11	CERAMIC CHIP	180PF	5%	50V	
C445	1-162-954-11	CERAMIC CHIP	120PF	5%	50V	
C446	1-162-946-11	CERAMIC CHIP	27PF	5%	50V	
C447	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C449	1-162-947-11	CERAMIC CHIP	33PF	5%	50V	
C450	1-163-131-00	CERAMIC CHIP	390PF	5%	50V	
C451	1-163-263-11	CERAMIC CHIP	330PF	5%	50V	
C452	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C453	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C454	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C455	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C456	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C457	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C458	1-162-956-11	CERAMIC CHIP	180PF	5%	50V	
C459	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	
C460	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C461	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C462	1-162-957-11	CERAMIC CHIP	220PF	5%	50V	
C463	1-162-957-11	CERAMIC CHIP	220PF	5%	50V	
C464	1-162-918-11	CERAMIC CHIP	18PF	5%	50V	
C465	1-164-145-11	CERAMIC CHIP	390PF	5%	50V	

Ref. No.	Part No.	Description				Remark
C466	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C467	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C468	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C469	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C470	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C471	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C472	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C473	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C474	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C475	1-162-948-11	CERAMIC CHIP	39PF	5%	50V	
C476	1-162-918-11	CERAMIC CHIP	18PF	5%	50V	
C499	1-162-947-11	CERAMIC CHIP	33PF	5%	50V	
C502	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C504	1-164-217-11	CERAMIC CHIP	150PF	5%	50V	
C505	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	
C506	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C507	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C508	1-162-952-11	CERAMIC CHIP	82PF	5%	50V	
C509	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C511	1-162-951-11	CERAMIC CHIP	68PF	5%	50V	
C512	1-162-950-11	CERAMIC CHIP	56PF	5%	50V	
C513	1-162-957-11	CERAMIC CHIP	220PF	5%	50V	
C514	1-162-953-11	CERAMIC CHIP	100PF	5%	50V	
C515	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C517	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C518	1-135-166-21	TANTALUM CHIP	47uF	10%	10V	
C521	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V	
C522	1-135-091-00	TANTALUM CHIP	1uF	20%	16V	
C523	1-135-091-00	TANTALUM CHIP	1uF	20%	16V	
C524	1-135-146-21	TANTALUM CHIP	0.68uF	20%	25V	
C525	1-162-995-11	CERAMIC CHIP	0.022uF		50V	
C526	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C527	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C528	1-162-945-11	CERAMIC CHIP	22PF	5%	50V	
C529	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V	
C530	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V	
C531	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V	
C532	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C533	1-162-944-11	CERAMIC CHIP	18PF	5%	50V	
C534	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C535	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C538	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C552	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C553	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C554	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C555	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C556	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C557	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C558	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C559	1-164-634-11	CERAMIC CHIP	1uF		16V	
C560	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C561	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C562	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	
C563	1-162-953-11	CERAMIC CHIP	100PF	5%	50V	
C564	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C566	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C567	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C568	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C569	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C570	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C571	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C572	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C573	1-164-634-11	CERAMIC CHIP	1uF		16V	
C574	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C575	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C576	1-162-947-11	CERAMIC CHIP	33PF	5%	50V	
C577	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C578	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C579	1-164-360-11	CERAMIC CHIP	0.1uF		16V	
C590	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
		(CONNECTOR)				
CN001	1-566-531-11	CONNECTOR, FPC (ZIF) 15P				
CN151	1-573-293-21	PIN, CONNECTOR (1.5MM)(SMD) 2P				
CN152	1-569-363-21	CONNECTOR, FPC 15P				
CN153	1-566-538-11	CONNECTOR, FPC (NON ZIF) 6P				
CN154	1-566-541-11	CONNECTOR, FPC (NON ZIF) 9P				
CN301	1-565-878-11	PIN, CONNECTOR (PC BOARD) 6P				
CN502	1-565-662-11	CONNECTOR (PC BOARD) 15P				
		(DIODE)				
D071	8-719-404-46	DIODE	MA110			
D072	8-719-800-76	DIODE	1SS226			
D073	8-719-404-46	DIODE	MA110			
D301	8-719-404-46	DIODE	MA110			
D302	8-719-404-35	DIODE	MA141WK			
D303	8-719-420-14	DIODE	MA8082-M			
D304	8-719-404-46	DIODE	MA110			
D305	8-719-404-46	DIODE	MA110			
D306	8-719-420-14	DIODE	MA8082-M			
D307	8-719-420-14	DIODE	MA8082-M			
D308	8-719-420-14	DIODE	MA8082-M			
D309	8-719-420-14	DIODE	MA8082-M			
D351	8-719-404-46	DIODE	MA110			
D401	8-719-421-03	DIODE	MA732			
D402	8-719-404-35	DIODE	MA141WK			
D403	8-719-820-05	DIODE	1SS181			
D404	8-719-820-05	DIODE	1SS181			
D405	8-719-404-46	DIODE	MA110			
D406	8-719-404-46	DIODE	MA110			

Ref. No.	Part No.	Description	Remark
D407	8-719-404-46	DIODE MA110	
D408	8-719-404-46	DIODE MA110	
D409	8-719-404-46	DIODE MA110	
D551	8-719-404-46	DIODE MA110	
D552	8-719-404-35	DIODE MA141WK	
D553	8-719-404-46	DIODE MA110	
		(FILTER)	
FL071	1-409-475-21	FILTER, TRAP	
FL351	1-236-850-21	FILTER, BAND PASS	
FL401	1-239-112-21	FILTER, LOW PASS (Y)	
FL402	1-236-775-11	FILTER, LOW PASS (DEM)	
FL501	1-239-110-11	FILTER, BAND PASS	
FL502	1-236-186-11	FILTER, BAND PASS	
FL503	1-579-371-11	FILTER, CERAMIC	
FL551	1-236-848-21	FILTER, LOW PASS	
FL552	1-239-010-11	FILTER, LOW PASS (CCD. PAL. Y)	
		(IC)	
IC001	8-759-080-20	IC CXA1555AR	
IC071	8-752-058-02	IC CXA1509AR	
IC072	8-759-009-10	IC MC14069UBF	
IC151	8-759-057-81	IC MPC1727VM	
IC152	8-759-823-90	IC LB8110M	
IC153	8-752-837-48	IC CXP80624-411Q	
IC154	8-759-057-77	IC MCD004BN	
IC155	8-759-243-19	IC TC7SU04F	
IC156	8-759-057-74	IC MCD002AR	
IC157	8-759-512-42	IC CXA1481R	
IC261	8-752-010-20	IC CX20102	
IC262	8-759-067-53	IC CXD2120Q	
IC301	8-759-038-83	IC MC13400FU	
IC303	8-759-061-70	IC MB86168PFV	
IC304	8-759-064-36	IC MB88346BPFV	
IC305	8-759-064-36	IC MB88346BPFV	
IC306	8-759-064-36	IC MB88346BPFV	
IC351	8-759-605-61	IC CXA1203N	
IC401	8-752-036-19	IC CXA1207R	
IC402	8-759-636-33	IC CXA1452	
IC403	8-752-053-21	IC CXA1211M	
IC501	8-752-036-20	IC CXA1208R	
IC503	8-752-053-21	IC CXA1211M	
IC551	8-752-333-24	IC CXL1506M	
IC552	8-752-333-24	IC CXL1506M	
		(COIL)	
L001	1-412-033-11	INDUCTOR CHIP 220uH	
L002	1-410-381-11	INDUCTOR CHIP 10uH	
L003	1-412-032-11	INDUCTOR CHIP 100uH	
L004	1-410-385-11	INDUCTOR CHIP 22uH	
L005	1-412-032-11	INDUCTOR CHIP 100uH	
L006	1-412-032-11	INDUCTOR CHIP 100uH	
L007	1-412-032-11	INDUCTOR CHIP 100uH	
L008	1-410-385-11	INDUCTOR CHIP 22uH	
L071	1-410-381-11	INDUCTOR CHIP 10uH	
L072	1-410-657-21	INDUCTOR CHIP 180uH	
L073	1-410-384-31	INDUCTOR CHIP 18uH	
L074	1-410-379-31	INDUCTOR CHIP 6. 8uH	
L075	1-410-377-31	INDUCTOR CHIP 4. 7uH	
L076	1-410-384-31	INDUCTOR CHIP 18uH	
L077	1-410-376-21	INDUCTOR CHIP 3. 9uH	
L078	1-408-797-11	INDUCTOR CHIP 470uH	
L079	1-410-392-11	INDUCTOR CHIP 82uH	
L080	1-410-378-11	INDUCTOR CHIP 5. 6uH	
L081	1-410-655-31	INDUCTOR CHIP 120uH	
L082	1-410-657-21	INDUCTOR CHIP 180uH	
L084	1-410-388-21	INDUCTOR CHIP 39uH	
L085	1-410-384-31	INDUCTOR CHIP 18uH	
L086	1-410-382-31	INDUCTOR CHIP 12uH	
L087	1-410-381-11	INDUCTOR CHIP 10uH	
L088	1-410-381-11	INDUCTOR CHIP 10uH	
L089	1-410-381-11	INDUCTOR CHIP 10uH	
L090	1-410-387-11	INDUCTOR CHIP 33uH	
L151	1-412-062-11	INDUCTOR CHIP 47uH	
L153	1-412-280-31	INDUCTOR 330uH	
L154	1-412-058-11	INDUCTOR CHIP 10uH	
L155	1-412-064-11	INDUCTOR CHIP 100uH	
L261	1-410-658-31	INDUCTOR CHIP 220uH	
L262	1-410-381-11	INDUCTOR CHIP 10uH	
L263	1-410-381-11	INDUCTOR CHIP 10uH	
L264	1-410-381-11	INDUCTOR CHIP 10uH	
L301	1-412-029-11	INDUCTOR CHIP 10uH	
L302	1-412-029-11	INDUCTOR CHIP 10uH	
L303	1-412-031-11	INDUCTOR CHIP 47uH	
L304	1-410-369-11	INDUCTOR CHIP 1uH	
L305	1-410-393-11	INDUCTOR CHIP 100uH	
L306	1-412-029-11	INDUCTOR CHIP 10uH	
L307	1-410-658-31	INDUCTOR CHIP 220uH	
L351	1-412-029-11	INDUCTOR CHIP 10uH	
L402	1-412-029-11	INDUCTOR CHIP 10uH	
L404	1-410-383-31	INDUCTOR CHIP 15uH	
L405	1-410-390-11	INDUCTOR CHIP 56uH	
L406	1-410-390-11	INDUCTOR CHIP 56uH	
L407	1-410-386-11	INDUCTOR CHIP 27uH	
L408	1-410-378-11	INDUCTOR CHIP 5. 6uH	
L410	1-410-386-11	INDUCTOR CHIP 27uH	
L411	1-410-376-21	INDUCTOR CHIP 3. 9uH	
L412	1-410-384-31	INDUCTOR CHIP 18uH	
L413	1-410-379-31	INDUCTOR CHIP 6. 8uH	
L501	1-412-029-11	INDUCTOR CHIP 10uH	
L502	1-410-393-11	INDUCTOR CHIP 100uH	

Ref. No.	Part No.	Description	Remark
L503	1-410-656-11	INDUCTOR CHIP 150uH	
L504	1-410-393-11	INDUCTOR CHIP 100uH	
L505	1-410-655-31	INDUCTOR CHIP 120uH	
L507	1-410-386-11	INDUCTOR CHIP 27uH	
L508	1-410-393-11	INDUCTOR CHIP 100uH	
L551	1-412-029-11	INDUCTOR CHIP 10uH	
L552	1-412-031-11	INDUCTOR CHIP 47uH	
L553	1-412-029-11	INDUCTOR CHIP 10uH	
L554	1-412-031-11	INDUCTOR CHIP 47uH	
		(IC LINK)	
⚠PS151	1-576-123-21	LINK, IC CCP2E20 0.8A	
		(TRANSISTOR)	
Q001	8-729-140-63	TRANSISTOR 2SA1611-M5M6	
Q002	8-729-140-63	TRANSISTOR 2SA1611-M5M6	
Q003	8-729-216-22	TRANSISTOR 2SA1162-G	
Q005	8-729-013-04	TRANSISTOR 2SC4851	
Q006	8-729-013-04	TRANSISTOR 2SC4851	
Q007	8-729-013-04	TRANSISTOR 2SC4851	
Q008	8-729-013-04	TRANSISTOR 2SC4851	
Q010	8-729-403-35	TRANSISTOR UN5113	
Q011	8-729-403-35	TRANSISTOR UN5113	
Q012	8-729-403-35	TRANSISTOR UN5113	
Q013	8-729-403-35	TRANSISTOR UN5113	
Q014	8-729-904-07	TRANSISTOR FMG2	
Q015	8-729-904-07	TRANSISTOR FMG2	
Q016	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q017	8-729-905-23	TRANSISTOR 2SA1576-R	
Q018	8-729-403-35	TRANSISTOR UN5113	
Q071	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q072	8-729-140-63	TRANSISTOR 2SA1611-M5M6	
Q073	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q074	8-729-402-42	TRANSISTOR UN5213	
Q075	8-729-402-42	TRANSISTOR UN5213	
Q076	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q078	8-729-402-42	TRANSISTOR UN5213	
Q079	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q080	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q081	8-729-140-63	TRANSISTOR 2SA1611-M5M6	
Q082	8-729-402-42	TRANSISTOR UN5213	
Q084	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q085	8-729-420-12	TRANSISTOR XN4213	
Q086	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q087	8-729-403-35	TRANSISTOR UN5113	
Q088	8-729-140-63	TRANSISTOR 2SA1611-M5M6	
Q089	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q090	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q091	8-729-403-35	TRANSISTOR UN5113	
Q092	8-729-120-28	TRANSISTOR 2SC1623-L5L6	

Ref. No.	Part No.	Description	Remark
Q151	8-729-907-00	TRANSISTOR DTC114EU	
Q261	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q262	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q263	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q264	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q265	8-729-905-23	TRANSISTOR 2SA1576-R	
Q302	8-729-905-23	TRANSISTOR 2SA1576-R	
Q303	8-729-403-35	TRANSISTOR UN5113	
Q304	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q306	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q307	8-729-905-23	TRANSISTOR 2SA1576-R	
Q309	8-729-402-42	TRANSISTOR UN5213	
Q310	8-729-402-42	TRANSISTOR UN5213	
Q313	8-729-402-78	TRANSISTOR XN6401	
Q314	8-729-106-60	TRANSISTOR 2SB1115A-YQ	
Q315	8-729-905-23	TRANSISTOR 2SA1576-R	
Q316	8-729-402-42	TRANSISTOR UN5213	
Q351	8-729-403-35	TRANSISTOR UN5113	
Q352	8-729-402-42	TRANSISTOR UN5213	
Q353	8-729-403-35	TRANSISTOR UN5113	
Q355	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q356	8-729-402-42	TRANSISTOR UN5213	
Q357	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q358	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q401	8-729-420-07	TRANSISTOR XN6213	
Q402	8-729-907-39	TRANSISTOR IMD2	
Q404	8-729-402-42	TRANSISTOR UN5213	
Q405	8-729-824-05	TRANSISTOR 3SK248	
Q406	8-729-402-42	TRANSISTOR UN5213	
Q407	8-729-402-42	TRANSISTOR UN5213	
Q409	8-729-403-35	TRANSISTOR UN5113	
Q410	8-729-402-78	TRANSISTOR XN6401	
Q411	8-729-403-06	TRANSISTOR XN1113	
Q412	8-729-930-13	TRANSISTOR UMH2	
Q413	8-729-402-42	TRANSISTOR UN5213	
Q414	8-729-423-52	TRANSISTOR 2SC3931-C	
Q415	8-729-824-02	TRANSISTOR 2SA1838	
Q416	8-729-402-42	TRANSISTOR UN5213	
Q417	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q418	8-729-905-23	TRANSISTOR 2SA1576-R	
Q419	8-729-905-23	TRANSISTOR 2SA1576-R	
Q420	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q421	8-729-402-42	TRANSISTOR UN5213	
Q422	8-729-823-16	TRANSISTOR 2SC4555-5. 6. 7	
Q423	8-729-823-16	TRANSISTOR 2SC4555-5. 6. 7	
Q424	8-729-402-42	TRANSISTOR UN5213	
Q425	8-729-421-90	TRANSISTOR XN4113	
Q426	8-729-117-73	TRANSISTOR 2SC4178-F14	
Q429	8-729-402-42	TRANSISTOR UN5213	
Q430	8-729-423-52	TRANSISTOR 2SC3931-C	

Ref. No.	Part No.	Description				Remark
Q431	8-729-423-52	TRANSISTOR	2SC3931-C			
Q432	8-729-402-81	TRANSISTOR	XN4501			
Q433	8-729-120-28	TRANSISTOR	2SC1623-L5L6			
Q434	8-729-120-28	TRANSISTOR	2SC1623-L5L6			
Q435	8-729-403-35	TRANSISTOR	UN5113			
Q437	8-729-905-23	TRANSISTOR	2SA1576-R			
Q438	8-729-423-52	TRANSISTOR	2SC3931-C			
Q439	8-729-920-99	TRANSISTOR	DTA114EU			
Q440	8-729-905-23	TRANSISTOR	2SA1576-R			
Q441	8-729-905-23	TRANSISTOR	2SA1576-R			
Q442	8-729-402-42	TRANSISTOR	UN5213			
Q443	8-729-402-42	TRANSISTOR	UN5213			
Q444	8-729-402-42	TRANSISTOR	UN5213			
Q501	8-729-117-73	TRANSISTOR	2SC4178-F14			
Q502	8-729-120-28	TRANSISTOR	2SC1623-L5L6			
Q504	8-729-905-23	TRANSISTOR	2SA1576-R			
Q505	8-729-905-23	TRANSISTOR	2SA1576-R			
Q506	8-729-120-28	TRANSISTOR	2SC1623-L5L6			
Q507	8-729-120-28	TRANSISTOR	2SC1623-L5L6			
Q508	8-729-120-28	TRANSISTOR	2SC1623-L5L6			
Q509	8-729-403-35	TRANSISTOR	UN5113			
Q510	8-729-423-52	TRANSISTOR	2SC3931-C			
Q511	8-729-402-42	TRANSISTOR	UN5213			
Q513	8-729-402-42	TRANSISTOR	UN5213			
Q514	8-729-402-42	TRANSISTOR	UN5213			
Q515	8-729-402-42	TRANSISTOR	UN5213			
Q516	8-729-402-42	TRANSISTOR	UN5213			
Q551	8-729-807-87	TRANSISTOR	2SB1295-UL6			
Q552	8-729-402-42	TRANSISTOR	UN5213			
Q553	8-729-807-87	TRANSISTOR	2SB1295-UL6			
Q554	8-729-402-42	TRANSISTOR	UN5213			
Q555	8-729-905-23	TRANSISTOR	2SA1576-R			
Q556	8-729-120-28	TRANSISTOR	2SC1623-L5L6			
Q557	8-729-120-28	TRANSISTOR	2SC1623-L5L6			
Q558	8-729-402-42	TRANSISTOR	UN5213			
Q559	8-729-905-23	TRANSISTOR	2SA1576-R			
Q560	8-729-120-28	TRANSISTOR	2SC1623-L5L6			
Q599	8-729-403-35	TRANSISTOR	UN5113			
		〈 RESISTOR 〉				
R001	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R002	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R003	1-216-814-11	METAL CHIP	270	5%	1/16W	
R004	1-216-813-11	METAL CHIP	220	5%	1/16W	
R005	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R006	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R007	1-216-805-11	METAL CHIP	47	5%	1/16W	
R008	1-216-805-11	METAL CHIP	47	5%	1/16W	
R009	1-216-818-11	METAL CHIP	560	5%	1/16W	
R010	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R011	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R012	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R013	1-216-807-11	METAL CHIP	68	5%	1/16W	
R014	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R015	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R018	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R019	1-216-807-11	METAL CHIP	68	5%	1/16W	
R020	1-216-807-11	METAL CHIP	68	5%	1/16W	
R021	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R024	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R025	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R026	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R027	1-216-807-11	METAL CHIP	68	5%	1/16W	
R028	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R029	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R030	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R031	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R032	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R033	1-216-816-11	METAL CHIP	390	5%	1/16W	
R034	1-216-816-11	METAL CHIP	390	5%	1/16W	
R035	1-216-816-11	METAL CHIP	390	5%	1/16W	
R036	1-216-816-11	METAL CHIP	390	5%	1/16W	
R037	1-216-864-11	METAL CHIP	0	5%	1/16W	
R039	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R040	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R052	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R053	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R054	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R057	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R058	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R059	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R060	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R061	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R062	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R063	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R064	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R066	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R071	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R072	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R073	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R074	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R075	1-216-820-11	METAL CHIP	820	5%	1/16W	
R076	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R077	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R078	1-216-817-11	METAL CHIP	470	5%	1/16W	
R079	1-216-817-11	METAL CHIP	470	5%	1/16W	
R080	1-216-815-11	METAL CHIP	330	5%	1/16W	
R081	1-216-820-11	METAL CHIP	820	5%	1/16W	
R082	1-216-810-11	METAL CHIP	120	5%	1/16W	
R083	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R084	1-216-812-11	METAL CHIP	180	5%	1/16W	
R085	1-216-819-11	METAL CHIP	680	5%	1/16W	
R086	1-216-864-11	METAL CHIP	0	5%	1/16W	
R087	1-216-813-11	METAL CHIP	220	5%	1/16W	
R088	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R089	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R090	1-216-819-11	METAL CHIP	680	5%	1/16W	
R091	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R092	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R093	1-216-816-11	METAL CHIP	390	5%	1/16W	
R095	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R096	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R097	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R098	1-216-813-11	METAL CHIP	220	5%	1/16W	
R099	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R100	1-216-818-11	METAL CHIP	560	5%	1/16W	
R101	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R102	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R103	1-216-820-11	METAL CHIP	820	5%	1/16W	
R104	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R105	1-216-820-11	METAL CHIP	820	5%	1/16W	
R106	1-216-814-11	METAL CHIP	270	5%	1/16W	
R107	1-216-817-11	METAL CHIP	470	5%	1/16W	
R108	1-216-817-11	METAL CHIP	470	5%	1/16W	
R109	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R110	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R111	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R112	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R114	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R116	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R117	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R118	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R119	1-216-817-11	METAL CHIP	470	5%	1/16W	
R120	1-216-810-11	METAL CHIP	120	5%	1/16W	
R121	1-216-815-11	METAL CHIP	330	5%	1/16W	
R122	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R123	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R124	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R125	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R126	1-216-817-11	METAL CHIP	470	5%	1/16W	
R127	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R128	1-216-805-11	METAL CHIP	47	5%	1/16W	
R129	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R130	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R131	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R132	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R133	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R134	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R135	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R136	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R138	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R151	1-216-168-00	METAL GLAZE	56	5%	1/8W	
R153	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R154	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R155	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R156	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R157	1-216-852-11	METAL CHIP	390K	5%	1/16W	
R158	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R159	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R160	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R161	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R162	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R163	1-218-883-11	METAL CHIP	33K	0.50%	1/16W	
R164	1-218-849-11	METAL CHIP	1.2K	0.50%	1/16W	
R166	1-216-809-11	METAL CHIP	100	5%	1/16W	
R167	1-217-671-11	METAL CHIP	1	5%	1/10W	
R168	1-217-671-11	METAL CHIP	1	5%	1/10W	
R169	1-217-671-11	METAL CHIP	1	5%	1/10W	
R170	1-217-671-11	METAL CHIP	1	5%	1/10W	
R171	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R172	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R173	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R174	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R175	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R176	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R177	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R178	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R179	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R180	1-216-864-11	METAL CHIP	0	5%	1/16W	
R182	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R183	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R184	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R186	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R187	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R189	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R190	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R192	1-216-819-11	METAL CHIP	680	5%	1/16W	
R194	1-216-864-11	METAL CHIP	0	5%	1/16W	
R195	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R196	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R197	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R198	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R199	1-216-856-11	METAL CHIP	820K	5%	1/16W	
R200	1-216-856-11	METAL CHIP	820K	5%	1/16W	
R201	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R202	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R203	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R204	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R205	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R206	1-216-845-11	METAL CHIP	100K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R207	1-216-818-11	METAL CHIP	560	5%	1/16W	
R211	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R213	1-216-864-11	METAL CHIP	0	5%	1/16W	
R215	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R216	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R217	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R218	1-216-844-11	METAL CHIP	82K	5%	1/16W	
R261	1-216-819-11	METAL CHIP	680	5%	1/16W	
R262	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R263	1-216-811-11	METAL CHIP	150	5%	1/16W	
R264	1-216-819-11	METAL CHIP	680	5%	1/16W	
R265	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R266	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R267	1-216-809-11	METAL CHIP	100	5%	1/16W	
R268	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R269	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R270	1-216-819-11	METAL CHIP	680	5%	1/16W	
R271	1-216-813-11	METAL CHIP	220	5%	1/16W	
R272	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R273	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R274	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R275	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R276	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R277	1-216-816-11	METAL CHIP	390	5%	1/16W	
R278	1-218-313-11	METAL CHIP	560	0.50%	1/16W	
R279	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R280	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R281	1-216-819-11	METAL CHIP	680	5%	1/16W	
R282	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R283	1-216-820-11	METAL CHIP	820	5%	1/16W	
R284	1-216-811-11	METAL CHIP	150	5%	1/16W	
R285	1-216-819-11	METAL CHIP	680	5%	1/16W	
R286	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R287	1-216-864-11	METAL CHIP	0	5%	1/16W	
R289	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R290	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R291	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R292	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R293	1-216-864-11	METAL CHIP	0	5%	1/16W	
R294	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R295	1-216-864-11	METAL CHIP	0	5%	1/16W	
R296	1-216-864-11	METAL CHIP	0	5%	1/16W	
R301	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R302	1-218-701-11	METAL CHIP	2.4K	0.50%	1/16W	
R303	1-216-817-11	METAL CHIP	470	5%	1/16W	
R304	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R305	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R306	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R307	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R308	1-216-840-11	METAL CHIP	39K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R309	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R310	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R312	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R313	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R314	1-216-817-11	METAL CHIP	470	5%	1/16W	
R315	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R316	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R317	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R318	1-216-803-11	METAL CHIP	33	5%	1/16W	
R319	1-216-804-11	METAL CHIP	39	5%	1/16W	
R320	1-216-811-11	METAL CHIP	150	5%	1/16W	
R321	1-216-803-11	METAL CHIP	33	5%	1/16W	
R322	1-216-804-11	METAL CHIP	39	5%	1/16W	
R329	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R330	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R331	1-216-791-11	METAL CHIP	3.3	5%	1/16W	
R332	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R333	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R334	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R335	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R336	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R337	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R338	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R340	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R345	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R351	1-216-819-11	METAL CHIP	680	5%	1/16W	
R352	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R353	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R354	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R355	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R356	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R358	1-218-895-11	METAL CHIP	100K	0.50%	1/16W	
R359	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R360	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R361	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R362	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R363	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R364	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R365	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R366	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R367	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R368	1-216-819-11	METAL CHIP	680	5%	1/16W	
R369	1-216-817-11	METAL CHIP	470	5%	1/16W	
R370	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R371	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R372	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R373	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R401	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R402	1-216-864-11	METAL CHIP	0	5%	1/16W	
R403	1-216-833-11	METAL CHIP	10K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R404	1-216-864-11	METAL CHIP	0	5%	1/16W	
R405	1-216-856-11	METAL CHIP	820K	5%	1/16W	
R408	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R409	1-216-820-11	METAL CHIP	820	5%	1/16W	
R410	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R411	1-216-804-11	METAL CHIP	39	5%	1/16W	
R412	1-216-803-11	METAL CHIP	33	5%	1/16W	
R413	1-218-895-11	METAL CHIP	100K	0.50%	1/16W	
R414	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R415	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R419	1-216-818-11	METAL CHIP	560	5%	1/16W	
R420	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R421	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R422	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R423	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R424	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R425	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R426	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R427	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R428	1-218-849-11	METAL CHIP	1.2K	0.50%	1/16W	
R429	1-218-859-11	METAL CHIP	3.3K	0.50%	1/16W	
R430	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R431	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R433	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R434	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R435	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R436	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R437	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R438	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R439	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R440	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R441	1-216-815-11	METAL CHIP	330	5%	1/16W	
R442	1-216-814-11	METAL CHIP	270	5%	1/16W	
R443	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R444	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R445	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R446	1-216-814-11	METAL CHIP	270	5%	1/16W	
R447	1-216-813-11	METAL CHIP	220	5%	1/16W	
R448	1-216-813-11	METAL CHIP	220	5%	1/16W	
R449	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R450	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R451	1-216-811-11	METAL CHIP	150	5%	1/16W	
R452	1-216-817-11	METAL CHIP	470	5%	1/16W	
R453	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R454	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R455	1-216-817-11	METAL CHIP	470	5%	1/16W	
R457	1-216-815-11	METAL CHIP	330	5%	1/16W	
R458	1-216-817-11	METAL CHIP	470	5%	1/16W	
R459	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R460	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R461	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R462	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R463	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R464	1-218-839-11	METAL CHIP	470	0.50%	1/16W	
R465	1-218-837-11	METAL CHIP	390	0.50%	1/16W	
R466	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R467	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R468	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R469	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R470	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R471	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R472	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R473	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R474	1-216-864-11	METAL CHIP	0	5%	1/16W	
R475	1-216-864-11	METAL CHIP	0	5%	1/16W	
R478	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R479	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R480	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R481	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R482	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R483	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R484	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R485	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R486	1-216-819-11	METAL CHIP	680	5%	1/16W	
R487	1-216-817-11	METAL CHIP	470	5%	1/16W	
R488	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R489	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R490	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R491	1-216-813-11	METAL CHIP	220	5%	1/16W	
R492	1-216-813-11	METAL CHIP	220	5%	1/16W	
R493	1-216-814-11	METAL CHIP	270	5%	1/16W	
R494	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R495	1-216-817-11	METAL CHIP	470	5%	1/16W	
R497	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R498	1-216-809-11	METAL CHIP	100	5%	1/16W	
R499	1-216-819-11	METAL CHIP	680	5%	1/16W	
R500	1-216-815-11	METAL CHIP	330	5%	1/16W	
R501	1-216-819-11	METAL CHIP	680	5%	1/16W	
R504	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R505	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R507	1-216-864-11	METAL CHIP	0	5%	1/16W	
R509	1-216-864-11	METAL CHIP	0	5%	1/16W	
R510	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R511	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R512	1-216-818-11	METAL CHIP	560	5%	1/16W	
R513	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R514	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R516	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R517	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R518	1-216-833-11	METAL CHIP	10K	5%	1/16W	

Ref. No.	Part No.	Description	Remark
R520	1-218-895-11	METAL CHIP 100K 0.50% 1/16W	
R521	1-216-864-11	METAL CHIP 0 5% 1/16W	
R522	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R523	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R524	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R525	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R526	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R527	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R528	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R529	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R530	1-216-817-11	METAL CHIP 470 5% 1/16W	
R531	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R532	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R533	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R534	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R535	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R536	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R537	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R540	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R541	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R542	1-216-807-11	METAL CHIP 68 5% 1/16W	
R543	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R544	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R545	1-216-864-11	METAL CHIP 0 5% 1/16W	
R546	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R547	1-216-864-11	METAL CHIP 0 5% 1/16W	
R549	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R550	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R551	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R552	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R553	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R554	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R555	1-216-810-11	METAL CHIP 120 5% 1/16W	
R556	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R557	1-216-864-11	METAL CHIP 0 5% 1/16W	
R559	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R561	1-216-864-11	METAL CHIP 0 5% 1/16W	
R563	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R564	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R565	1-216-817-11	METAL CHIP 470 5% 1/16W	
R566	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R567	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R568	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R569	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R570	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R571	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R572	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R573	1-216-810-11	METAL CHIP 120 5% 1/16W	
R574	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R575	1-216-864-11	METAL CHIP 0 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R577	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R578	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R579	1-216-864-11	METAL CHIP 0 5% 1/16W	
R580	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R581	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R582	1-216-817-11	METAL CHIP 470 5% 1/16W	
R583	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R584	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R585	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R586	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R587	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R588	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R589	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R590	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R591	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R592	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R593	1-216-813-11	METAL CHIP 220 5% 1/16W	
R595	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R596	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R599	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	

(CONPOSITION CIRCUIT BLOCK)

Ref. No.	Part No.	Description	Remark
RB151	1-236-432-11	NETWORK, RES 47K	
RB152	1-236-448-11	NETWORK, RES 1.0M	
RB153	1-236-432-11	NETWORK, RES 47K	
RB154	1-236-432-11	NETWORK, RES 47K	
RB155	1-236-412-11	NETWORK, RES 1.0K	
RB156	1-236-412-11	NETWORK, RES 1.0K	
RB157	1-236-424-11	NETWORK, RES 10K	
RB158	1-236-424-11	NETWORK, RES 10K	
RB159	1-236-424-11	NETWORK, RES 10K	
RB160	1-236-432-11	NETWORK, RES 47K	
RB161	1-236-424-11	NETWORK, RES 10K	
RB162	1-236-444-11	NETWORK, RES 470K	
RB163	1-236-440-11	NETWORK, RES 220K	
RB164	1-236-408-11	NETWORK, RES 470	

(VARIABLE RESISTOR)

Ref. No.	Part No.	Description	Remark
RV551	1-238-086-11	RES, ADJ, CERMET 470	

(FLAT CABLE)

Ref. No.	Part No.	Description	Remark
W002	1-642-238-11	FP-484 FLEXIBLE BOARD	
W152	1-642-236-11	FP-482 FLEXIBLE BOARD	
W302	1-642-237-11	FP-483 FLEXIBLE BOARD	
W303	1-642-241-11	FP-519 FLEXIBLE BOARD	
W304	1-642-242-11	FP-520 FLEXIBLE BOARD	

(VIBRATOR)

Ref. No.	Part No.	Description	Remark
X151	1-579-368-31	VIBRATOR, CRYSTAL (11.7MHz)	
X261	1-579-558-11	VIBRATOR, CRYSTAL (11.50MHz)	
X501	1-579-366-11	VIBRATOR, CRYSTAL (4.43MHz)	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remark
3	1-537-297-31	TERMINAL BOARD, BATTERY	
19	1-542-180-11	MICROPHONE ASSY	
29	1-944-055-11	HARNESS (CD-26)	
61	1-466-689-21	SWITCH BLOCK, CONTROL (CF-29)	
63	1-466-688-51	SWITCH BLOCK, COTROL (FK-51) (E, Australian, Tourist model)	
63	1-466-800-11	SWITCH BLOCK, CONTROL (FK-51) (AEP, UK model)	
127	1-537-407-12	TERMINAL BOARD (JACK BOARD)	
404	1-547-529-21	FILTER BLOCK, OPTICAL (OFB-03-03)	
IC301	A-7030-338-A	CCD BLOCK ASSY (BOND) (CCD IMAGER)	
M901	A-7048-534-A	DRUM BLOCK ASSY (DGH-80A-R)	
M902	8-835-329-12	MOTOR, DC U-21A (CAPSTAN)	
M903	1-541-607-21	MOTOR, DC (LA12G-344VA) (LOADING)	
M904	3-708-445-01	METER, IG (IRIS)	
M905	3-708-443-01	MOTOR ASSY, STEPPING (FOCUS)	
M906	3-708-442-01	MOTOR ASSY, PZ (ZOOM)	
⚠PS901	1-532-841-21	LINK, IC	
⚠PS902	1-532-841-21	LINK, IC	
⚠PS903	1-532-841-21	LINK, IC	
SE101	1-466-700-11	SENSOR, ANGLE SPEED (YS)	
SE102	1-466-700-11	SENSOR, ANGLE SPEED (PS)	
⚠V901	1-452-565-11	CRT ASSY (M01KTA80WB)	

****

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
	1-466-801-11	REMOTE CONTROLLER (CAM CODER) (RMT-508)	
	1-571-164-11	SWITCH, ANTENNA CHANGE (CABLE) (E, Tourist model)	
	1-575-334-11	CORD, CONNECTION	
	1-575-335-21	CORD, CONNECTION	
	1-695-531-11	ADAPTOR, CONVERSION (AEP, UK model)	
	3-712-673-01	SCREWDRIVER (E, Tourist model)	
	3-738-517-01	BELT (S), SHOULDER	
	3-754-482-41	MANUAL, INSTRUCTION (ENGLISH) (AEP, UK model)	
	3-754-482-51	MANUAL, INSTRUCTION (FRENCH, GERMAN, SPANISH) (AEP model)	
	3-754-482-61	MANUAL, INSTRUCTION (DUTCH, SWEDISH, ITALIAN) (AEP model)	
	3-754-482-71	MANUAL, INSTRUCTION (PORTUGUESE) (AEP model)	
	3-754-482-81	MANUAL, INSTRUCTION (DANISH, FINNISH) (AEP model)	
	3-755-151-61	MANUAL, INSTRUCTION (ENGLISH) (E, Australian, Tourist model)	
	3-755-151-71	MANUAL, INSTRUCTION (FRENCH, GERMAN, SPANISH) (E, Tourist model)	
	3-755-151-81	MANUAL, INSTRUCTION (ARABIC) (E, Tourist model)	
	3-755-151-91	MANUAL, INSTRUCTION (CHINESE) (E model)	
*	3-943-154-11	HOLDER, REMOTE CONTROL	
*	3-947-224-51	INDIVIDUAL CARTON	
*	3-947-225-01	CUSHION (UPPER)	
*	3-947-226-01	CUSHION (LOWER)	
	A-6767-706-A	RFU ADAPTOR (RFU-89EA) (E, Tourist model)	
	A-6768-255-A	RFU ADAPTOR (RFU-90AS) (Australian model)	
	** AC-V30	AC POWER ADAPTOR.	
	*** NP-55H	BATTERY PACK.	

Note.

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.
*** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

****

HARDWARE LIST
****

Ref. No.	Part No.	Description	Remark
#1	7-624-102-04	STOP RING 1.5 TIPE-E	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 7
CAMERA SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 246.

7-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

7-1-1. List of Service Tools

- Oscilloscope
- Adjusting driver
- Stabilized power supply
- Color monitor
- Vectorscope
- Digital voltmeter

Ref. No.	Name	Part Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	Max gain adjustment (2 used) White balance check
	ND filter 0.4	J-6080-806-A	Max gain adjustment
	ND filter 0.3	J-6080-818-A	White balance adjustment
	ND filter 0.1	J-6080-807-A	Max gain adjustment
J-3	Pattern box PTB-500	J-6029-140-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote control unit (RM-95-remodeled in part)[Note 1]	J-6082-053-A	
J-6	Siemens star	J-6080-875-A	For checking flange back
J-7	Measuring pin jig for camera section	J-6082-139-A	For camera section adjustment
J-8	Measuring pin jig for video section	J-6082-140-A	For video section adjustment
J-9	Extension cord (48P, 0.8 mm)	J-6082-177-A	For extension between CF-29 board and VC-126 board (CN922)
J-10	Extension cord (24P, 0.8 mm)	J-6082-178-A	For extension between VD-21 board (CN001) and SE-22 board (CN101) (During the repair of the camera section)
J-11	Relay board (21P, 0.5 mm)[Note 2]	J-6082-176-A	For extension between the lens block (FPC) and VC-126 board (CN851) (During the repair of the camera section)
J-12	Extension cord (16P, 0.8 mm)	J-6082-136-A	For extension between CD-72 board (CN301) and VC-126 board (CN801) (During the repair of the camera section)
J-13	Extension cord (20P, 0.5 mm)[Note 2]	J-6082-138-A	For extension between the lens block (FPC) and VC-126 board (CN851) (During the repair of the camera section)

Note 1: If the micro processor IC in the adjusting remote control unit is not the new micro processor (UPD7503G-C56-12), the switchover of the page cannot be carried out. In this case, replace with the new micro processor (8-759-148-35).

Note 2: The extension code (J-6082-179-A) is also attached with a 21P, 0.5 mm code. Connect this code to the relay board (J-6082-176-A) for extensions between the lens block (FPC) and VC-126 board (CN851).

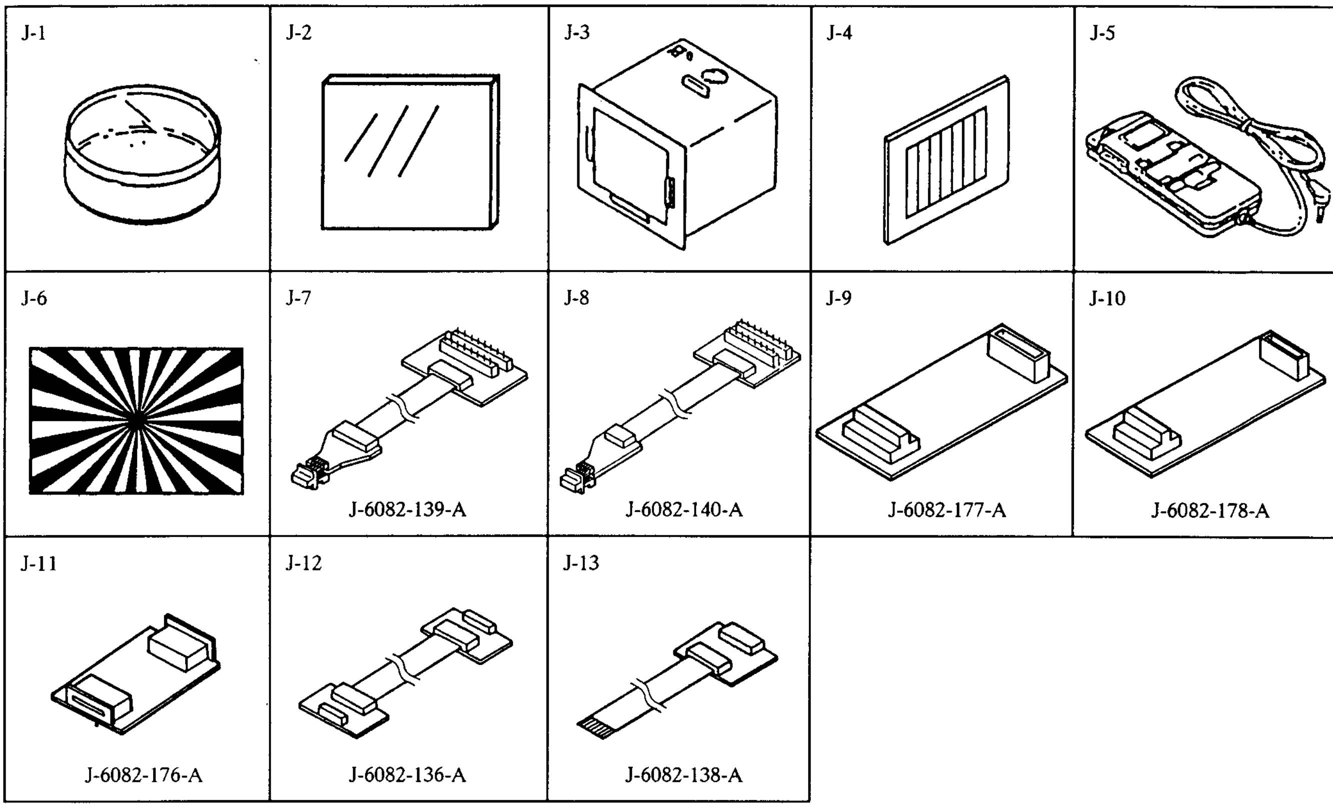

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-6082-139-A
J-8
J-6082-140-A
J-9
J-6082-177-A
J-10
J-6082-178-A
J-11
J-6082-176-A
J-12
J-6082-136-A
J-13
J-6082-138-A

Fig. 7-1.

7-1-2. Preparations

Note 1: For further details on how to remove the cabinet and each board, refer to "1. Disassembly".

Note 2: When performing adjustments only, it is not necessary to separate the lens block and VC-126 board.

1) Connect the equipments for adjustment as shown in Fig. 7-3.
2) It is not necessary to connect the front panel assembly (including the MA-109 and RM-54 boards) and AU-143 board (audio board).
3) The EVF (Electronic viewfinder) is required for checking the white balance mode and shutter speeds. The same contents will be displayed on the monitor TV by turning on the data screen. If the EVF is not required, remove the VS-98 board CN301.

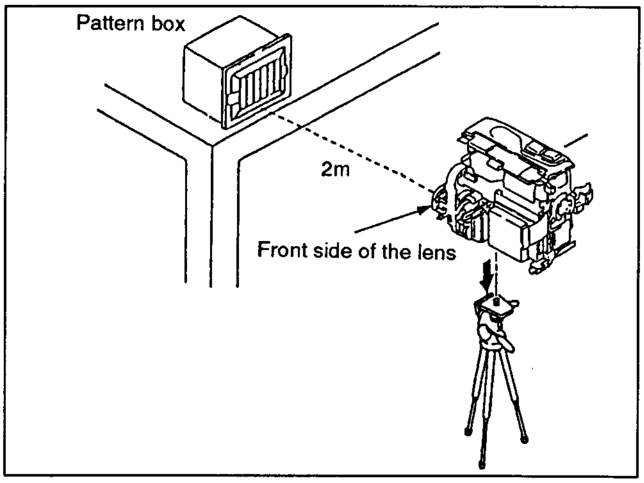
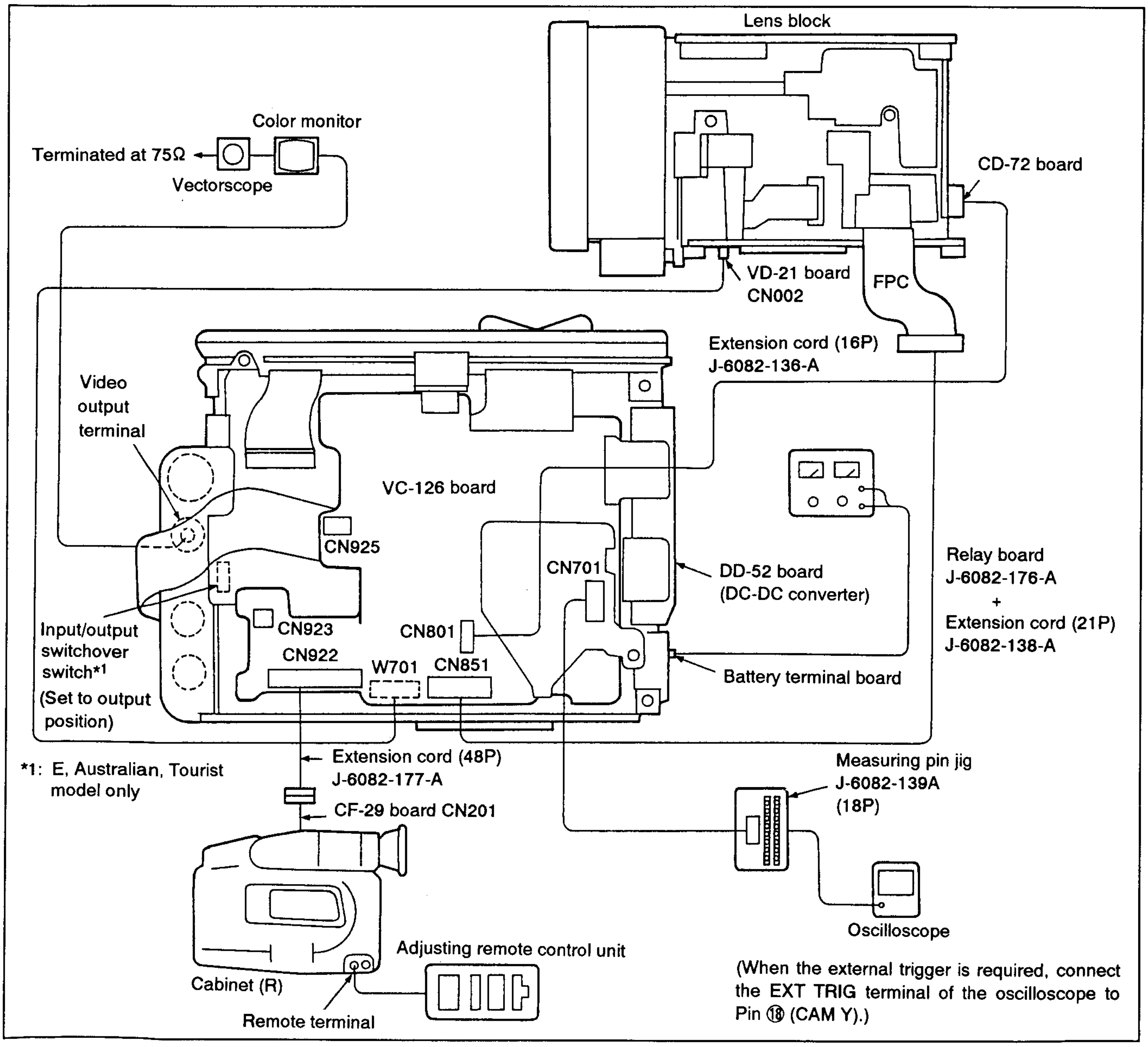

Pattern box
2m
Front side of the lens

Fig. 7-2.


Lens block
Color monitor
Terminated at 75Ω
Vectorscope
CD-72 board
VD-21 board
CN002
FPC
Extension cord (16P)
J-6082-136-A
Video output terminal
VC-126 board
CN925
CN701
DD-52 board
(DC-DC converter)
Relay board
J-6082-176-A
+
Extension cord (21P)
J-6082-138-A
Input/output switchover switch*1
(Set to output position)
CN923
CN922
CN801
W701
CN851
Battery terminal board
Extension cord (48P)
J-6082-177-A
CF-29 board CN201
Measuring pin jig
J-6082-139A
(18P)
Oscilloscope
Adjusting remote control unit
Cabinet (R)
Remote terminal

*1: E, Australian, Tourist model only

(When the external trigger is required, connect the EXT TRIG terminal of the oscilloscope to Pin ⑱ (CAM Y).)

Fig. 7-3.

7-1-3. Precautions

1. Switch settings

Adjust the switches to the following positions, and perform the adjustments without inserting the tape, unless specified otherwise.

1. Camera/player (or VTR) power switch (FK-51 board S119) ···································· Camera
2. Standby switch (FK-51 board S118) ················ Standby
3. Input/output switchover switch (Pin jack board) (Except for AEP, UK model) ························· Output
4. Steady shot switch (CF-29 board S216) ···················Off
5. Auto-lock switch (CF-29 board S217) ·····················Off
6. Focus button (CF-29 board S213) ·····················Manual
7. Shutter speed button (CF-29 board S312) ··· Normal (1/50)
8. Brightness button (CF-29 board S211) ··········· Automatic

2. Adjustment Procedure

Perform in the given order as a rule.

3. Subject

1) Color bar chart (Standard picture frame)
Adjust the picture frame as shown in Fig. 7-4. if adjustments are performed using the color bar chart. (Standard picture frame)
2) White pattern (Standard picture frame)
Remove the color bar chart from the pattern box, and adjust the zoom lever so that the white pattern becomes the same size and is in the same position as the color bar chart (Standard picture frame).

Color bar chart standard picture frame

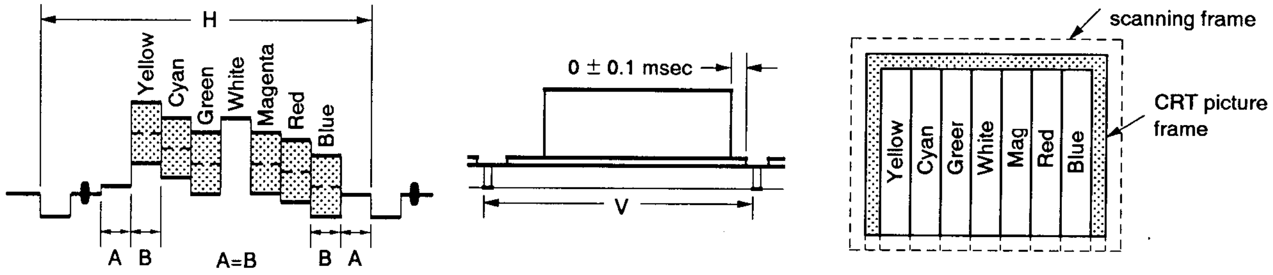


Fig. a. (Video input/output terminal output waveform)

Fig. b. (TV Monitor picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the TV monitor picture shown in Fig. b.

Fig. 7-4.

3) Chart for flange back adjustment
Combine a white A0 size (1189 mm× 841 mm) paper to a black one, and make the chart shown in Fig. 7-5.

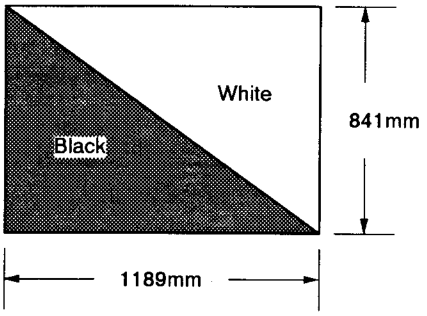


Fig. 7-5.

Note: Use the non-reflecting and non-glazing vellum paper whose size is more than A0, and make the boundary between white and black to be smoothly flat.

7-1-4. Adjusting Remote Control Unit

The camera section is adjusted by changing the constant and the coefficient of the digital signal processing calculation, or modifying the output voltage of EVR IC (VC-126 board IC705). These processes are carried out by the camera micro processor (VC-126 board IC702). This micro processor reads the data written in the non-volatile memory (VC-126 board IC701: EEPROM), and transmits it to the digital signal processing circuit and EVR.

The adjusting remote control unit is used for rewriting the adjustment data written in the non-volatile memory necessary for performing the adjustments.

The adjusting remote control unit uses the remote control signal line (LANC) to correspond mutually with the camera micro processor. The page, address and the up/down command of the data can be transmitted from the remote control unit to the camera micro processor. On the other hand, the page, address, and data can also be transmitted the other way round.

1. Using the adjusting remote control unit

1) Connect the adjusting remote control unit to the remote terminal (LJ-6 board J511).
2) Adjust the HOLD switch of the adjusting remote control unit to HOLD (SERVICE position).
   If it has been properly connected, the LCD on the adjusting remote control unit will show the display in Fig. 7-6.

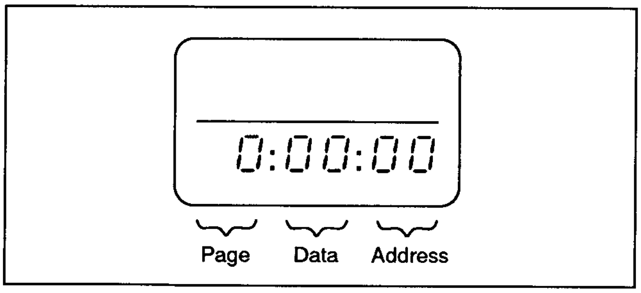


Fig. 7-6.

3) Operate the adjusting remote control unit as follows.
   - Changing the page
     The page will increase when the EDIT SEARCH+ button is pressed. It will decrease when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Display on LCD	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 7-1.

   - Changing the address
     The address will increase when the FF (▸▸) button is pressed, and decrease when the REW (◂◂) button is pressed. There are altogether 256 addresses, from 00 to FF. However, the addresses which are not used for the adjustments will not be displayed.
   - Changing the data (Data setting)
     The data will increase when the PLAY (▶) button is pressed, and decrease when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     It is necessary to press the PAUSE button to write the adjustment data (F page, E page, D page) in the non-volatile memory.
     (The new adjustment data will not be recorded in the non-volatile memory if this operation is not performed.)
4) Select page: 6, address: 00, and adjust the data to 01 (window OFF adjustment mode) or 11 (window ON adjustment mode). This releases the write protect of page F, and the camera section (F page) can be adjusted.
   (To adjust the titler system (D page), adjust the data of page: 01, address: 00 to 01, and release the protect of page D.)
5) After completing all adjustments, turn off the main power (6.3V) once. This can release the adjustment mode (adjustment modes other than page E and page F).

2. Precautions upon using the adjusting remote control unit

The correct adjustment data may be erased at times, due to operation errors of the adjusting remote control unit. To prevent this from occurring, it is recommended that all adjustment data be recorded in the memory before beginning adjustments, and the new adjustment data be recorded in the memory after each adjustment.

7-1-5. Page F Address List

Note 1: The data listed in the adjustment data memo column are fixed values.

Note 2: The adjustment data initial values are the values immediately after performing "Page F, Page E Data Initialization" and "Page F, Page E Data Modification". They are different from the values after performing all the adjustments.

Address	Name	Function [ ] Indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
00	ID	Set ID	32	32
01	FADER LEVEL	AE REF level modification during fader	E0	E0
02	FADER ENDTIM	The setting of the AE REF modulation time during fader	10	10
03	CS SL	Carrier balance adjustment	35	
04	VSUB	CCD imager V SUB adjustment [IC705 ③]	80	
05	VPGH	CCD imager VRG adjustment [IC705 ④]	80	
06	VREF Y	Camera core Y D/A standard voltage, SYNC level adjustment [IC705 ⑤]	7B	
07	VREF C	Camera core CHROMA D/A standard voltage, BURST level adjustment [IC705 ⑥]	99	
08	HALL GAIN	Hall amplifier gain adjustment [IC705 ⑦] } HALL adjustment	75	
09	HALL OFFSET	Hall amplifier offset adjustment [IC705 ⑧]	79	
0A	E LOWLIGHT START	Low luminance intensity REF level modulation start setting	20	20
0B	REF 2V	2V standard voltage for hall device [IC705 ⑫]	68	68
0C	AD REF	Black level setting during A/D conversion, A/D off set adjustment [IC705 ⑬]	72	
0D	CORE DETH	CCD correction control	04	04
0E	CORE VTR DELAY	1HDL longitudinal setting during VTR playback	16	16
0F	CORE APCN4	Horizontal aperture setting	B5	B5
10	CORE APCN5	Vertical aperture setting	3F	3F
11	CORE EFECT	Special effect control	A0	A0
12	CORE MATR	BLUE matrix constant	26	26
13	CORE MATB	RED matrix constant	6D	6D
14	CORE BURST LEVEL	Burst flag level setting, color modulation ON/OFF Data | Adjustment mode 38 | Normal level 3A | Color modulation stopped	38	38
15	CORE CHROMA DLY	Y/C delay adjustment	04	04
16	CORE Y SETUP	Set up level setting	02	02
17	CORE VHAPCN	Slice and level setting of the aperture signal	04	04
18	CORE B-Y GAIN	B–Y GAIN } Color reproduction adjustments	13	
19	CORE R-Y GAIN	R–Y GAIN	11	
1A	CORE R-Y HUE	R–Y HUE	00	
1B	CORE B-Y HUE	B–Y HUE	00	
1C	CS/APCCUT	Low luminance intensity aperture and chroma suppress level	24	24

Table 7-2 (1).

Address	Name	Function [ ] indicate the adjustment voltage output terminal		Adjustment data	
				Initial value	Memo column
1D	NEXT LINE DEFECT BIT	CCD correction pattern	CCD imager correction data write	00	
1E	CCD DEFECT0	CCD correction data		00	
1F	CCD DEFECT1	CCD correction data		00	
20	CCD DEFECT2	CCD correction data		00	
21	CCD DEFECT3	CCD correction data		00	
22	CCD DEFECT4	CCD correction data		00	
23	CCD DEFECT5	CCD correction data		00	
24	CCD DEFECT6	CCD correction data		00	
25	CCD DEFECT7	CCD correction data		00	
26	CCD DEFECT8	CCD correction data		00	
27	CCD DEFECT9	CCD correction data		00	
28	CCD DEFECT10	CCD correction data		00	
29	CCD DEFECT11	CCD correction data		00	
2A	CCD DEFECT12	CCD correction data		00	
2B	CCD DEFECT13	CCD correction data		00	
2C	CCD DEFECT14	CCD correction data		00	
2D	RREF L	3200k Red standard data LSB	Auto white balance preset adjustment	72	
2E	RREF H	3200k Red standard data MSB		5F	
2F	GREF L	3200k Green standard data LSB		D4	
30	GREF H	3200k Green standard data MSB		63	
31	BREF L	3200k Blue standard data LSB		3B	
32	BREF H	3200k Blue standard data MSB		2C	
33	RCONTREF	3200k RCONT adjustment value	Pre-white balance adjustment	42	
34	BCONTREF	3200k BCONT adjustment value		4A	
35	AWB NOWM R	Red regular correction coefficient	Auto white balance adjustment	7E	
36	AWB NORM B	Blue regular correction coefficient		96	
37	AWB SHUT IN	Indoor determination shutter data		A8	A8
38	ABW SHUT OUT	Outdoor determination shutter data		A0	A0
39	AWB IRIS IN	Indoor determination hall data	IRIS IN/OUT adjustment	79	
3A	AWB IRIS OUT	Outdoor determination hall data		7F	
3B	AWB G LEVEL	High luminance section green integral level		02	02
3C	AWB G WIDTH	High luminance section green integral level range		03	03
3D	DMAT HUE	Variable linear matrix HUE coefficient	Linear matrix adjustment	00	
3E	DMAT GAIN	Variable linear matrix GAIN coefficient		00	
3F	AWB SELECT	AWB mode selection		00	00
40	AWB DIFF	Standard difference from the outdoor fixed value		0A	0A
41	AWB BOTTOM SLP R	AWB incoming frame bottom R coefficient		30	30
42	AWB BOTTOM SLP B	AWB incoming frame bottom B coefficient		58	58
43	AWB MIDDLE SLP R	AWB incoming frame middle R coefficient		62	62
44	AWB MIDDLE SLP B	AWB incoming frame middle B coefficient		47	47
45	AWB TOP SLP R	AWB incoming frame top R coefficient		6C	6C
46	AWB TOP SLP B	AWB incoming frame top B coefficient		1A	1A

Table 7-2 (2).

<table>
<tr><th rowspan="2">Address</th><th rowspan="2">Name</th><th rowspan="2">Function
[ ] indicate the adjustment voltage output terminal</th><th colspan="2">Adjustment data</th></tr>
<tr><th>Initial value</th><th>Memo column</th></tr>
<tr><td>47</td><td>AWB KEIKO R</td><td>AWB incoming frame fluorescent light R coefficient</td><td>66</td><td>66</td></tr>
<tr><td>48</td><td>AWB KEIKO B</td><td>AWB incoming frame fluorescent light B coefficient</td><td>18</td><td>18</td></tr>
<tr><td>49</td><td>AWB BOTTOM UP</td><td>AWB incoming frame bottom upper value</td><td>8C</td><td>8C</td></tr>
<tr><td>4A</td><td>AWB BOTTOM DWN</td><td>AWB incoming frame bottom lower value</td><td>6B</td><td>6B</td></tr>
<tr><td>4B</td><td>AWB MIDDLE UP</td><td>AWB incoming frame middle upper value</td><td>B8</td><td>B8</td></tr>
<tr><td>4C</td><td>AWB MIDDLE DWN</td><td>AWB incoming frame middle lower value</td><td>9F</td><td>9F</td></tr>
<tr><td>4D</td><td>AWB TOP UP</td><td>AWB incoming frame top upper value</td><td>80</td><td>80</td></tr>
<tr><td>4E</td><td>AWB TOP DWN</td><td>AWB incoming frame top lower value</td><td>66</td><td>66</td></tr>
<tr><td>4F</td><td>AWB KEIKO</td><td>AWB incoming frame fluorescent light output lower value</td><td>6C</td><td>6C</td></tr>
<tr><td>50</td><td>AWB KEIKO DWN</td><td>AWB incoming frame fluorescent light lower value</td><td>5C</td><td>5C</td></tr>
<tr><td>51</td><td>AWB R TOP LMT</td><td>AWB incoming frame Rcont upper value</td><td>6C</td><td>6C</td></tr>
<tr><td>52</td><td>AWB R DWN LMT</td><td>AWB incoming frame Rcont lower value</td><td>20</td><td>20</td></tr>
<tr><td>53</td><td>AWB B TOP LMT</td><td>AWB incoming frame Bcont upper value</td><td>83</td><td>83</td></tr>
<tr><td>54</td><td>AWB B IN TOP</td><td>AWB incoming frame Bcont</td><td>67</td><td>67</td></tr>
<tr><td>55</td><td>AWB B IN MAX</td><td>AWB incoming frame Bcont</td><td>5C</td><td>5C</td></tr>
<tr><td>56</td><td>AWB B OUT MIN</td><td>AWB incoming frame Bcont</td><td>5C</td><td>5C</td></tr>
<tr><td>57</td><td>AWB B OUT DWN</td><td>AWB incoming frame Bcont</td><td>4A</td><td>4A</td></tr>
<tr><td>58</td><td>AWB B DWN LMT</td><td>AWB incoming frame Bcont lower value</td><td>20</td><td>20</td></tr>
<tr><td>59</td><td>AWB LL LMT</td><td>Low luminance intensity limiter</td><td>06</td><td>06</td></tr>
<tr><td>5A</td><td>AWB T M DIVID</td><td>AWB incoming frame upper, middle border value</td><td>5B</td><td>5B</td></tr>
<tr><td>5B</td><td>AWB B M DIVID</td><td>AWB incoming frame middle, lower border value</td><td>3C</td><td>3C</td></tr>
<tr><td>5C</td><td>AWB DELAY TM</td><td>AWB tracking speed
<table>
<tr><th>Data</th><th>Adjustment mode</th></tr>
<tr><td>01</td><td>High speed tracking mode</td></tr>
<tr><td>0C</td><td>Normal</td></tr>
</table></td><td>0C</td><td>0C</td></tr>
<tr><td>5D</td><td>AWB FAST TM</td><td>AWB initial high speed tracking amount</td><td>40</td><td>40</td></tr>
<tr><td>5E</td><td>AWB OUT HYS OFF</td><td>AWB outdoor hysteresis off difference</td><td>0C</td><td>0C</td></tr>
<tr><td>5F</td><td>AWB OUT B HYS</td><td>AWB outdoor hysteresis amount</td><td>06</td><td>06</td></tr>
<tr><td>60</td><td>AWB MODE</td><td>AWB adjustment mode
<table>
<tr><th>Data</th><th>Adjustment mode</th></tr>
<tr><td>00</td><td>Normal</td></tr>
<tr><td>D0</td><td>AWB adjustment mode</td></tr>
<tr><td>F1</td><td>Sampling display mode</td></tr>
</table></td><td>00</td><td>00</td></tr>
<tr><td>61</td><td>AE REFL</td><td>Reference value (lower) for AE</td><td>00</td><td>00</td></tr>
<tr><td>62</td><td>AE REFH</td><td>Reference value (upper) for AE</td><td>1B</td><td>1B</td></tr>
<tr><td>63</td><td>AGC MIN</td><td>AGC MIN value (AGCREF value), IRIS level adjustment</td><td>E3</td><td></td></tr>
<tr><td>64</td><td>AE MIML</td><td>Low luminance intensity side limiter (MAXGAIN), MAX GAIN adjustment</td><td>32</td><td></td></tr>
<tr><td>65</td><td>AE MAXL</td><td>High luminance intensity side limiter (lower)</td><td>80</td><td>80</td></tr>
<tr><td>66</td><td>IRIS OFFSET</td><td>Iris ROM table OPEN side offset</td><td>D0</td><td>D0</td></tr>
<tr><td>67</td><td>AE KEISU</td><td>Correction coefficient during detection weighting</td><td>00</td><td>00</td></tr>
</table>

Table 7-2 (3).

Address	Name	Function [ ] indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
68	AE FUNCTION	SW for turning each AE function ON and OFF	42	42
69	BL HOSEIH	Forcible back light level setting (upper)	40	40
6A	JITEISU DOWN	Constant during loop response, DOWN side	28	28
6B	JITEISU UP	Constant during loop response, UP side	0D	0D
6C	AE KNEE	KNEE setting value for AE	FF	FF
6D	ORETEN SET	Variable point due to time constant error amount	13	13
6E	OMOMIOUT	Outer frame weighting amount	40	40
6F	AFC WIDE	Coefficient required for the ANF integral loop	03	03
70	AFC GAIN	Loop gain of the flickerless loop	01	01
71	AFC LIMIL	Limiter corresponding to the error rate (Lower)	60	60
72	HIST P KEISU	Histocomp level setting P for counter light determination	20	20
73	HIST H KEISU	Histocomp level setting H for counter light determination	E0	E0
74	HIST L KEISU	Histocomp level setting L for counter light determination	90	90
75	GYKOU JITEISU	Constant during auto back light response	08	08
76	SUBN LIMIT	Limiter for counter light determination	40	40
77	FUZZY RULE1	Correction amount 1 for auto back light	90	90
78	FUZZY RULE2	Correction amount 2 for auto back light	C0	C0
79	FUZZY RULE3	Correction amount 3 for auto back light	B0	B0
7A	FUZZY RULE4	Correction amount 4 for auto back light	A0	A0
7B	FUZZY RULE5	Correction amount 5 for auto back light	70	70
7C	FUZZY RULE6	Correction amount 6 for auto back light	80	80
7D	FUZZY RULE7	Correction amount 7 for auto back light	A0	A0
7E	FUZZY RULE8	Correction amount 8 for auto back light	98	98
7F	FUZZY RULE9	Correction amount 9 for auto back light	90	90
80	FUZZY RULE10	Correction amount 10 for auto back light	78	78
81	IRIS MIN L	Not used		
82	IRIS MIN H	Not used		
83	DELTA SHUT GAIN	Not used		
84	AE WAKUH	Frame data for AE detection (vertical line)	0F	0F
85	AE WAKUV	Frame data for AE detection (horizontal line)	4F	4F
86	WIDE LIMIT	ZOOM limiter WIDE (lower) Flange back adjustment	DE	
87	WIDE LIMITH	ZOOM limiter WIDE (upper)	02	
88	TELE LIMIT	ZOOM limiter TELE (lower)	22	
89	TELE SIMITH	ZOOM limiter TELE (upper)	1D	
8A	STEP ZERO	Flange back value	65	
8B	STEP ZERO SPAN (VAP ONLY)	Flange back value 2	BE	
8C	ZOOM SPD FAST	Zoom speed (fast)	73	73
8D	ZOOM SPD SUPER	Zoom speed (For adjustment)	76	76
8E	ZS INIT SLOW	Zoom speed initial value (slow)	76	76
8F	ZS INIT FAST	Zoom speed initial value (fast)	76	76
90	ZMSPD DAMIN	Zoom speed D/A MIN value	3D	3D
91	ZS K	Zoom servo coefficient K	11	11

Table 7-2 (4).

<table>
<tr><th rowspan="2">Address</th><th rowspan="2">Name</th><th rowspan="2">Function
[ ] Indicate the adjustment voltage output terminal</th><th colspan="2">Adjustment data</th></tr>
<tr><th>Initial value</th><th>Memo column</th></tr>
<tr><td>92</td><td>ZS L</td><td>Zoom servo coefficient L</td><td>04</td><td>04</td></tr>
<tr><td>93</td><td>ZP HYS</td><td>Zoom potential hysteresis</td><td>03</td><td>03</td></tr>
<tr><td>94</td><td>ZOOM SPD SLOW</td><td>Zoom speed (slow)</td><td>29</td><td>29</td></tr>
<tr><td>95</td><td>AF MD2THL</td><td>MODE2 THR</td><td>20</td><td>20</td></tr>
<tr><td>96</td><td>MAXCHG THR</td><td>MAX value renewal THR</td><td>1A</td><td>1A</td></tr>
<tr><td>97</td><td>ERR THL</td><td>Wobbling width THR</td><td>18</td><td>18</td></tr>
<tr><td>98</td><td>WOB INTV</td><td>Wobbling second interval</td><td>04</td><td>04</td></tr>
<tr><td>99</td><td>ERRPOL THR</td><td>MODE2 error possible THR</td><td>13</td><td>13</td></tr>
<tr><td>9A</td><td>MAXCHK THR</td><td>MAX CHECK THR</td><td>12</td><td>12</td></tr>
<tr><td>9B</td><td>REWOB THR</td><td>Wobbling second THR</td><td>0A</td><td>0A</td></tr>
<tr><td>9C</td><td>MODE2 INOUT</td><td>MODE2 speed switchover</td><td>8B</td><td>8B</td></tr>
<tr><td>9D</td><td>SMLWD THR</td><td>Small frame THR</td><td>0A</td><td>0A</td></tr>
<tr><td>9E</td><td>ZOOM PULSE LIMIT</td><td>Maximum zoom pulse value</td><td>EE</td><td>EE</td></tr>
<tr><td>9F</td><td>ZOOM RIZE</td><td>Zoom rise minimum speed time</td><td>0A</td><td>0A</td></tr>
<tr><td>A0</td><td>FB CURVEPEAKL</td><td>Constant for flange back adjustment</td><td>F5</td><td>F5</td></tr>
<tr><td>A1</td><td>FB CURVEPEAKH</td><td>Constant for flange back adjustment</td><td>0B</td><td>0B</td></tr>
<tr><td>A2</td><td>FB ZOOMSH</td><td>Constant for flange back adjustment</td><td>5D</td><td>5D</td></tr>
<tr><td>A3</td><td>FB ZOOMSH</td><td>Constant for flange back adjustment</td><td>06</td><td>06</td></tr>
<tr><td>A4</td><td>LIMITREST WIDE</td><td>Zoom limiter WIDE side</td><td>14</td><td>14</td></tr>
<tr><td>A5</td><td>LIMITREST TELE</td><td>Zoom limiter TELE side</td><td>0F</td><td>0F</td></tr>
<tr><td>A6</td><td>FB PEAKTHR</td><td>Constant for flange back adjustment</td><td>FF</td><td>FF</td></tr>
<tr><td>A7</td><td>FB FOCUSZERO</td><td>Constant for flange back adjustment</td><td>1C</td><td>1C</td></tr>
<tr><td>A8</td><td>DET IRIS ALT</td><td>Iris variation check THR</td><td>02</td><td>02</td></tr>
<tr><td>A9</td><td>DET AGC ALT</td><td>AGC variation check THR</td><td>02</td><td>02</td></tr>
<tr><td>AA</td><td>LIMIT INSURANCE</td><td>Focus limiter insurance value</td><td>02</td><td>02</td></tr>
<tr><td>AB</td><td>FOCUS MODE</td><td>Focus mode
<table>
<tr><th>Data</th><th>Adjustment mode</th></tr>
<tr><td>08</td><td>Zoom, Focus fixed</td></tr>
<tr><td>00</td><td>Normal</td></tr>
</table></td><td>00</td><td>00</td></tr>
<tr><td>AC</td><td>LENS ADJ MODE</td><td>Flange back adjustment mode
<table>
<tr><th>Data</th><th>Adjustment mode</th></tr>
<tr><td>00</td><td>Nomal</td></tr>
<tr><td>01</td><td>Flange back adjustment</td></tr>
</table></td><td>00</td><td>00</td></tr>
<tr><td>AD</td><td>LENS EMRG</td><td>Lens emergency</td><td>00</td><td>00</td></tr>
<tr><td>AE</td><td>NTSC PAL/H DEF</td><td>DELAY bit=0: NTSC, 1: PAL, bit4-7=CCD correction delay</td><td>19</td><td>19</td></tr>
<tr><td>AF</td><td>FT SW</td><td>DDS display mode switchover
<table>
<tr><th>Data</th><th>DDS display mode</th><th>Data</th><th>DDS display mode</th></tr>
<tr><td>00</td><td>Y sampling display</td><td>40</td><td>HALL data display</td></tr>
<tr><td>01</td><td>B–Y display</td><td>82</td><td>R ratio display</td></tr>
<tr><td>02</td><td>R–Y display</td><td>83</td><td>B ratio display</td></tr>
<tr><td>03</td><td>R–Y, B–Y display</td><td>B0</td><td>Focus step display</td></tr>
<tr><td>21</td><td>Normal</td><td></td><td></td></tr>
</table></td><td>21</td><td>21</td></tr>
</table>

Table 7-2 (5).

Address	Name	Function [ ] indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
B0	CORE OTHER	Core mode data 13 byte	36	36
B1	CORE Y GAIN	0 byte Y gain of core field data	3C	3C
B2	LOW LIGHT CS	Low luminance intensity, color erasure start point	80	80
B3				
B4	E LOWLIGT START 2	Low luminance intensity REF level modulation start setting 2	80	80
B5	E LOWLIGT LEVE	Low luminance intensity REF level modulation start setting	F0	F0
B6	ZOOM DROP 1	F-No drop due to zoom lens (1)	60	60
B7	ZOOM DROP 2	F-No drop due to zoom lens (2)	75	75
B8				
B9				
BA	AWB IN B HYS	AWB indoor B hysteresis amount	04	04
BB	AWB IN R HYS	AWB indoor R hysteresis amount	02	02
BC	AWB KAKE NORM R	Set to 1000H by multiplying with reference value of ADR: 35 (NORM R)	20	20
BD	AWB KAKE NORM B	Set to 1000H by multiplying with reference value of ADR: 36 (NORM B)	40	40
BE	MF STEP CHNGE	MODE2 THR coefficient	06	06
BF	ZOOM SPEED SUPER SLOW		07	07
C0	ZOOM INT SUPER SLOW		14	14
C1	AF CONTROL FLAG		0E	0E
C2	AE Y THR	AE variation THR. 1 during low luminance intensity	28	28
C3	AE Y MIN	AE variation THR. 2 during low luminance intensity	20	20
C4	MD2 SPD	Focus speed during MODE2	61	61
C5	AE CHECK	Re-start up AE THR	10	10
C6	LOWCON THR	LOW CON determination THR.1 during MODE2	10	10
C7	LOWCON THR 2	LOW CON determination THR.2 during MODE2	20	20
F0		Input column of the unit ID No., etc. Not related to unit operations.	FF	
F1			FF	
F2			FF	
F3			FF	
F4			FF	
F5			FF	
F6			FF	
F7			FF	
F8			FF	
F9			FF	
FA			FF	
FB			FF	
FC			FF	
FD			FF	
FE			FF	
FF			FF	

Table 7-2 (6).

7-1-6. Page E Address List

Note 1: The data listed in the adjustment data memo column are fixed values.

Note 2: The adjustment data initial values are the values immediately after performing "Page F, Page E Data Initialization" and "Page F, Page E Data Modification". They are different from the values after performing all the adjustments.

Address	**Name**	**Function** **[ ] Indicate the adjustment voltage output terminal**	**Adjustment data**	
			Initial value	**Memo column**
00	a0 V SENSOR GAIN	Pitch adjustment gain } VAP adjustment	80	
01	a1 V SENSOR GAIN	YAW adjustment gain	80	
02	a1 COMPLETE		00	00
03	a0 V LIMIT 1	PITCH initial limiter	FF	FF
04	a0 V LIMIT 2	Loop limiter in PITCH integral	7F	7F
05	a0 V CORE VALUE	PITCH core ring	10	10
06	a0 V K HPF	PITCH HPF feedback coefficient	FF	FF
07	a1 H LIMIT 1	YAW initial limiter	FF	FF
08	a1 H LIMIT 2	Loop limiter in YAW integral	7F	7F
09	a1 H CORE VALUE	YAW core ring	10	10
0A	a1 H K HPF	YAW HPF feedback coefficient	FF	FF
0B	a0 K TABLE	PITCH and YAW integral feedback coefficient table	04	04
0C	a0 ADLP CENTER PITCH	Vertical angle sensor (PITCH) input	00	00
0D	a0 ADLP CENTER PITCH+1	Vertical angle sensor (PITCH) input	80	80
0E	a0 ADLP CENTER YAW	Vertical angle sensor (YAW) input	00	00
0F	a0 ADLP CENTER YAW+1	Vertical angle sensor (YAW) input	80	80
10	a0 V REF CENTER	PITCH PWM center value	00	00
11	a0 V REF CENTER+1	PITCH PWM center value	08	08
12	a1 H REF CENTER	YAW PWM center value	00	00
13	a1 H REF CENTER+1	YAW PWM center value	08	08

Table 7-3.

7-1-7. Page, 6 Page 1 Address List

The camera adjustment mode can be set by performing the following data settings at page: 6 or page: 1. (These page data can be set temporary, but when the main power (6.3V) is turned off, the original value (normal value) will be returned. Therefore, these adjustment modes can be released very simply by turning the main power off.)

(Example) The camera adjustment mode (window OFF) is set by setting data: 01 to page: 6, address: 00. The F page write protect will also be released.

1. Page 6

Address	Adjustment Mode	Data	Function
00	Camera adjustment mode	01 10 11	Camera adjustment mode (window OFF), F page write protect released Normal Camera adjustment mode (window ON), F page write protect released
01	Camera adjustment switch **Note:** To set this address adjustment mode, it is necessary to press the PAUSE button of the adjusting remote control unit after setting the data.	00 01 03 05 07 09 0B 0D 0F 11 13 15 1D	Normal IRIS OPEN, AGC HOLD IRIS CLOSE1, AGC HOLD IRIS CLOSE2, AGC MIN IRIS CLOSE3, AGC MAX ND0.5 SHUTTER (PAL=1/160, NTSC=1/190) ND0.8 SHUTTER (PAL=1/320, NTSC=1/380) AWB PRESET1: 3200K PRESET DATA take in WB 3200K PRESET: Indoor white balance mode AWB PRESET2: 3200K PRESET DATA take in ZOOM HUNTING1 ZOOM SPDSLOW ZOOM HUNTING2 ZOOM SPDFAST EEPROM PRE WRITE: Page F, Page E initial data write
05	Shutter mode	00 to 04 05	1/50 1/120
06	FOCUS limiter ON/OFF	00 01	FOCUS limiter ON FOCUS limiter OFF
07	ZOOM limiter ON/OFF	00 01	ZOOM limiter ON ZOOM limiter OFF
08	ZOOM speed SLOW/FAST	00 01 02 03	Normal ZOOM speed SLOW ZOOM speed FAST ZOOM speed SUPER SLOW
09 ★	COMPLEATED FLAG	00 01	Camera adjustment not completed Camera adjustment completed
11 ★	ROM VERSION	05	Camera micro processor ver5
0C ★	LENS INITIAL END	00 01	During the initial operation of the lens Lens initial operation completed
0D ★	PHOTO INTERRUPTER MONITOR	00 01	inf side near side

Addresses with ★ are exclusively for reading.

Table 7-4.

2. Page 1

Address	Adjustment Mode	Data	Function
E6	VH address L		Title horizontal/vertical position (L)
E7	VH address H		Title horizontal/vertical position (H)

Table 7-5.

7-1-8. Adjustment Connector

Most of the measuring points for the camera section adjustment are concentrated on CN701 of the VC-126 board. Connect the oscilloscope etc. via the measuring pin jig (J-6082-139-A). The following table lists the terminal numbers and the signal names of CN701.

Terminal Number	Signal Name	Terminal Number	Signal Name
1	D5V	2	NC
3	ZOOM SW	4	CAM SI
5	CS EEPROM	6	CAM SO
7	$\overline{\text{CS OPD}}$	8	$\overline{\text{CAM SCK}}$
9	$\overline{\text{CS CORE}}$	10	GND
11	IRIS OUT	12	NC
13	V SUB CHK	14	CAM C
15	PG CONT	16	GND
17	NC	18	CAM Y

Table 7-6.

7-1-9. Data Processing

The calculation of the DDS display and the adjusting remote control unit display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 7-7. indicates the hexadecimal notation-the decimal notation calculation table.

Hexadecimal notation-Decimal notation

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	80	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B (b)	176	177	178	179	180	180	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) indicate the adjusting remote control unit display.

(Example) In the case that the DDS display and the adjusting remote control unit display are BD (b d).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 7-7.

7-2. CAMERA SYSTEM ADJUSTMENT

1. Power Supply Voltage Check (DD-52 board)

Subject	Option
Measuring instrument	Digital voltmeter
D5V check	
Measurement point	Pins ⑨ and ⑩ of CN202
Specified value	$4.85^{+0.15}_{-0.05}$ Vdc
M5V (1) check	
Measurement point	Pins ⑭ and ⑮ of CN202
Specified value	4.98 ± 0.15 Vdc
CAM 5V check	
Measurement point	Pins ①, ③ and ⑥ of CN202
Specified value	4.90 ± 0.15 Vdc
CAM 15V check	
Measurement point	Pin ② of CN202
Specified value	15.0 ± 0.15 Vdc
CAM –9V check	
Measurement point	Pin ④ of CN202
Specified value	–8.40 ± 0.40 Vdc

Checking method:

1) Check that each power supply voltage satisfies the specified value.
   If not, refer to "VIDEO SECTION ADJUSTMENT, POWER SYSTEM ADJUSTMENT".

2. Page F, Page E Data Initialization

Note: It is necessary to perform all adjustments of the camera section from the beginning again if the data of page F, page E has been initialized.

Initializing method:

1) Release the protect.
   Page: 6, address: 00, data: 01.
2) Check that the data of page: 6, address: 09 is 00.
   (Display indicating that page F, page E data can be initialized)
3) Set data: 1D to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Page F, page E data initialization execution.
   The data of all addresses of page F, page E will be initialized.)
4) Check that the data of page: 6, address: 09 is 01.
   (Displays that the initialization of page F, page E data has been completed)
5) Set data: 00 to page: 6, address: 01. and press the PAUSE button of the adjusting remote control unit.
   (Releases the page F, page E data initialization mode)
6) After performing "Page F, page E data modification", perform all the adjustments of the camera section (page F and page E).

3. Page F, Page E Data Modification

The data (initial data) that is automatically written on page F page E after the initialization of the page F, page E data i different from the initial data for adjustment. Change the data b manual input, and arrange it.

Note: When changing the data, to write the data to th non-volatile memory, press the PAUSE button of th adjusting remote control unit every time the new data i set.

Page F

Address	Data
00 (ID)	32
14 (CORE BURST LEVEL)	38
15 (CORE CHROMA DLY)	04
16 (CORE Y SETUP)	02
17 (CORE VHAPCN)	04
1A (CORE R–Y HUE)	00
1B (CORE B–Y HUE))	00
5C (AWB DELAY TM)	0C
62 (AE REF H)	1B
68 (AE FUNCTION)	42
6A (JITEISU DOWN)	28
6B (JITEISU UP)	0D
8C (ZOOM SPD FAST)	73
8D (ZOOM SPD SUPER)	76
8E (ZS INIT SLOW)	76
8F (ZS INIT FAST)	76
94 (ZOOM SPD SLOW)	29
9E (ZOOM PULSE LIMIT)	EE
AE (NTSC PAL/H DEF DELAY)	19
AF (FF SW)	21
B1 (CORE Y GAIN)	3C
C0 (ZOOM INT SUPER SLOW)	14

Page E

Address	Data
05 (a0 V CORE VALUE)	10
09 (a1 H CORE VALUE)	10

[Distinguishing the Camera Micro Processor (IC702) Versions]

Each version can be distinguished by looking at the part name of the camera micro processor or the data of page: 6, address: 11.

Version	Part Name	Page: 6 Address: 11
Ver.5	CXP80624-297Q	05

4. 28 MHz Original Oscillation Adjustment (VC-126 board)

Subject	Not required
Measurement Point	Pin ⑰ of IC703
Measuring Instrument	Frequency counter
Adjusting Element	CT801
Specified Value	14187500 ± 71 Hz

Adjusting method:

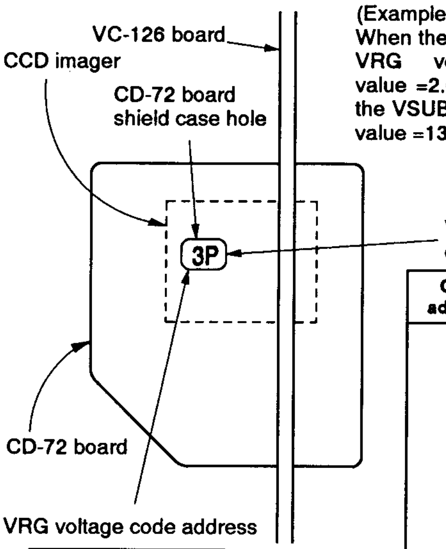
1) Use CT801 to adjust the oscillation frequency to 14187500 ± 71 Hz.

5. V SUB Adjustment (VC-126 board)

Subject	Not required
Measurement Point	Pin ⑬ of CN701 (V SUB CHK)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	04 (V SUB)
Specified Value	(Imager display voltage) ± 0.1 Vdc

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Change the data of page: F, address: 04, and adjust the voltage of pin ⑬ of CN701 to (imager display voltage) ± 0.1 Vdc.
3) Press the PAUSE button of the adjusting remote control unit.



(Example)
When the display is 3P, the VRG voltage specified value =2.0 ± 0.1 Vdc, and the VSUB voltage specified value =13.5 ± 0.1 Vdc.

VRG voltage code address

Code address	Voltage (Vdc)
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0

VSUB voltage code address

Code address	Voltage (Vdc)
E	9.0
F	9.5
G	10.0
H	10.5
J	11.0
K	11.5
L	12.0
M	12.5
N	13.0
P	13.5
Q	14.0
R	14.5
S	15.0
T	15.5
U	16.0
V	16.5
W	17.0
X	17.5
Y	18.0
Z	18.5

Fig. 7-7.

6. VRG Adjustment (VC-126 board)

Subject	Not required
Measurement Point	Pin ⑮ of CN701 (PG CONT)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	05 (VRG)
Specified Value	(Imager display voltage) ± 0.1 Vdc

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Change the data of page: F, address: 05, and adjust the voltage of pin ⑮ of CN701 to (imager display voltage) ± 0.1 Vdc.
3) Press the PAUSE button of the adjusting remote control unit.

7. CCD Imager Correction Data Write

Subject	Not required
Adjustment Page	F
Adjustment	1D to 2C (CCD-DEFECT)

Perform CCD imager correction data write in the following cases.

1. When the CCD imager has been replaced
2. The ocassion of exchanging a camera micro processor or EEPROM (IC701).
3. When the page F data has been initialized

In the case of 1, as the correction data is not required for the CCD imager for repair, adjust all data of addresses 1D to 2C to "00".

In the case of 2 and 3, write the correction data attached to the shield case of DD-52 board to addresses 1D to 2C.

If the correction data are not attached, adjust all data of addresses 1D to 2C to "00".

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Write the correction data to page: F, addresses: 1D to 2C.
   Note: To perform write to the non-volatile memory, press the PAUSE button of the adjusting remote control unit every time the new data is set.

Processing after completing adjustments

1) If the CCD imager has been replaced, remove the old correction data label attached on DD-52 board.

8. VAP Pre-check

Subject	Color bar chart
Measuring Point	Adjusting remote control unit display Page: B, address: 0B ····PH Page: B, address: 0D ····YH
Measuring Instrument	
Specified Value	PHF ≦ 68 YHF ≦ 68 PHO ≧ 98 YHO ≧ 98

Checking method:

1) Adjust the position of the unit so that the color bar char comes to the center of the monitor (top, bottom, left, anc right).
2) Release the protect.
   Page: 6, address: 00, data: 01
3) Set data: 01 to page: B, address: 05.
   (a1 SENS VAP MODE 4 setting)
4) Set data: FF to page: E, address: 10.
   Set data: 0F to page: E, address: 11.
   (Check that the color bar chart shifts downwards on the monitor TV.)
5) After 1 second, check that the data (PHF) of page: B, address: 0B is within the "00" to "68" range.
6) Set data: 00 to page: E, address: 10.
   Set data: 08 to page: E, address: 11.
   (Check that the color bar chart shifted downwards moves back to the center of the monitor TV.)
   Set data: FF to page: E, address: 12.
   Set data: 0F to page: E, address: 13.
   (Check that the color bar chart shifts to the right.)
7) After 1 second, check that the data (YHF) of page: B, address: 0D is within the "00" to "68" range.
8) Set data: 00 to page: E, address: 12.
   Set data: 00 to page: E, address: 13.
   (Check that the color bar chart shifts to the left via the center.)
9) After 1 second, check that the data (YHO) of page: B, address: 0D is within the "98" to "FF" range.
10) Set data: 08 to page: E, address: 13.
    (Check that the color bar chart moves back to the center.)
    Set data: 00 to page: E, address: 11.
    Set data: 00 to page: E, address: 10.
    (Check that the color bar chart shifts upwards.)
11) After 1 second, check that the data (PHO) of page: B, address: 0B is within the "98" to "FF" range.
12) Set data: 08 to page: E, address: 11.
    (Check that the color bar chart moves back to the center.)
13) Set data: 00 to page: B, address: 05.
    (Release of a1 SENS VAP MODE 4)

HALL Adjustment

Subject	Not required
Measurement Point	DDS display of EVF or monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	08 (HALL GAIN) 09 (HALL OFFSET)
Specified Value	31 to 35 during IRIS OPEN B1 to B5 during IRIS CLOSE

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Set data: 40 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (HALL output display mode setting)
3) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE mode setting)
4) Set data: 40 to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
5) Read the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or the monitor TV display), and take it as W_2.
6) Set data: 30 to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
7) Read the DDS display data, and take it as W_1.
8) Set data: 01 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS OPEN mode setting)
9) Read the DDS display data, and take it as K_1.
10) Set data: 40 to page: F, address: 08, and press the PAUSE button.
11) Read the DDS display data, and take it as K_2.
12) Convert W_1, W_2, K_1, K_2 to decimal notation, and obtain W_1', W_2', K_1', K_2'. (Refer to Table 7-7. "Hexadecimal notation-decimal notation conversion table".)
13) Calculate X_1' using the following equations (decimal notation calculation).
   $A' = W_2' + K_1' - W_1' - K_2'$ ··························Equation 1
   $B' = W_1' - K_1'$ ···Equation 2
   $X_1' = \frac{2048 + (48 \times A') - (16 \times B')}{A'}$ ················Equation 3
14) Convert X_1' to hexadecimal notation, and obtain X_1.
   (Round off to one decimal place)
15) Set data: X_1 to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
16) Change the data of page: F, address: 09, and adjust the DDS display data to "33".
17) Press the PAUSE button of the adjusting remote control unit.
18) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE mode setting)
19) Read the DDS display data, and take it as W_0. If W_0 lies within the "B1" to "B5" range, perform "Processing after completing adjustments". If it lies outside the range, perform the following adjustments.
20) Convert W_0 to decimal notation, and obtain W_0'.
21) Calculate X_2' using the following equations (decimal notation calculation).
   $C' = W_0' - B' - 51$ ····································Equation 4
   $X_2' = \frac{(128 - B') \times (X_1' - 48) + 48 \times C'}{C'}$ ···········Equation 5
   (X_1' and B' are values obtained from equations 2 and3)
22) Convert X_2' to hexadecimal notation and obtain X_2.
   (Round off to one decimal place)
23) Set data X_2 to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
24) Change the data of page: F, address: 09, and adjust the DDS display data to "B3".
25) Press the PAUSE button of the adjusting remote control unit.
26) Set data: 01 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS OPEN mode setting)
27) Check that the DDS display data lies within the "31" to "35" range.

Processing after Completing Adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS NORMAL mode setting)

10. Flange Back Adjustment

Subject	Chart for flange back adjustment (1000 ± 5 mm from the front side of the lens Luminance: 350 ± 50 lux)
Measurement Point	Check the operations on the TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	86 (WIDE LIMIT), 87 (WIDE LIMIT H), 88 (TELE LIMIT), 89 (TELE LIMIT H), 8A (STEP ZERO), 8B (STEP ZERO SPAN)

Adjusting method:

1) Check that the STEADY SHOT switch is at "Off".
2) Check that the data of address: 86 to address: 8A of page: F are set to the initial values.
3) Check that the flange back adjustment chart center and the exposure display center coincide at both zoom lens TELE end and WIDE end.
4) Release the protect.
   Page: 6, address: 00, data: 01
5) Check that the data of page: 6, address: 09 is 00.
   (Flange back adjustment possible display)
6) Set data: 01 to page: F, address: AC.
   (This causes automatic adjustment to be performed. Adjustments are performed at the zoom lens TELE end first, and then at the WIDE end. The adjustment data is automatically input to page: F, addresses: 86 to 8B.)
7) Check that the data of page: 6, address: 09 is 01.
   (Display indicating flange back adjustment completion)

Processing after completing adjustments

1) Set data: 00 to page: F, address: AC.
2) Turn off the main power supply (6.3V).

11. Flange Back Check

Subject	Siemens star (1m from the front of the lens)
Measurement Point	DDS display of EVF or monitor TV
Measuring Instrument	
Specified Value	$D_2=D_1$ ± 3

Checking method:

1) Set data: 11 to page: 6, address: 00.
   (Camera adjustment (window ON) mode)
2) Set data: B0 to page: F, address: AF.
   (Focus step display mode)
3) Place the Siemens star 1m from the front of the lens.
4) Set the "Auto-lock" switch to "Off".
5) Set the "Exposure" to "Manual". Rotate the "Exposure" d
   to the "+" side, and set the IRIS to "Open".
6) Adjust the luminance intensity or shutter speed for t
   Siemens star so that the optimum image can be obtained.
7) Expose the siemens star at the zoom TELE end.
8) Set the "Focus" to "Manual". Rotate the focus ring, a
   adjust the focus.
9) Adjust to the zoom WIDE end.
10) Read the focus step value (4 digits) displayed on the T
    monitor, and take it as D_1.
11) Rotate the focus ring, and adjust the focus.
    Read the focus step value, and take it as D_2.
12) Check that $D_2=D_1$ ± 3.

Processing after Completing Check

1) Set data: 21 to page: F, address: AF.
   Press the PAUSE button of the adjusting remote contr
   unit.

12. SYNC Level Adjustment (VC-126 board)

Subject	Not required
Measurement Point	Pin ⑱ of CN701 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	06 (VREF-Y)
Specified Value	A=150 ± 5 mV

Adjusting method:
1) Release the protect.
   Page: 6, address: 00, data: 01
2) Set data: 05 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE mode setting)
3) Change the data of page: F, address: 06, and adjust so that the SYNC level (A) becomes the specified value.
4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments
1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Release of IRIS CLOSE mode)

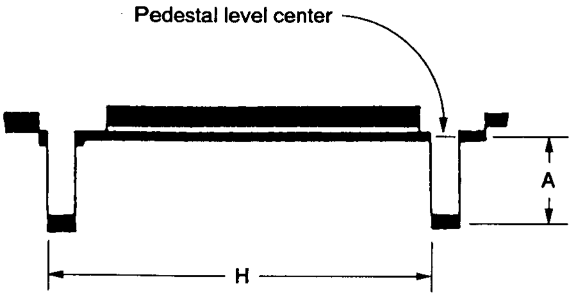


Fig. 7-8.

13. BURST Level Adjustment (VC-126 board)

Subject	Not required
Measurement Point	Pin ⑭ of CN701 (CAM C)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	07 (VREF-C)
Specified Value	A=150 ± 5 mVp-p

Adjusting method:
1) Release the protect.
   Page: 6, address: 00, data: 01
2) Set data: 05 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE mode setting)
3) Change the data of page: F, address: 07, and adjust so that the burst level (A) becomes the specified value.
4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments
1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Release of IRIS CLOSE mode)

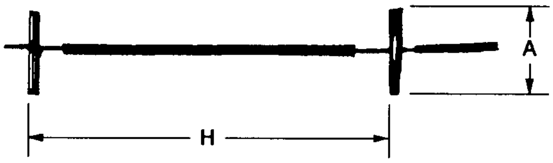


Fig. 7-9.

14. A/D Offset Adjustment

Subject	Not required
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope and DDS display on the EVF or the TV monitor
Adjustment Page	F
Adjustment Address	0C (AD REF)
Specified Value	42 to 43

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Set data: 05 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE AGC MIN mode setting)
3) Set data: 00 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (Y sampling output mode setting)
4) Set data: 35 to page: 1, address: E6.
   (Setting 1 of the sampling position)
5) Set data: 6D to page: 1, address: E7.
   (Setting 2 of the sampling position)
6) Gradually increase the data of page: F, address: 0C from "00" until the black luminance point of the vectorscope begins to enlarge. At this time, check that the DDS display data is "42" and sometimes "43".

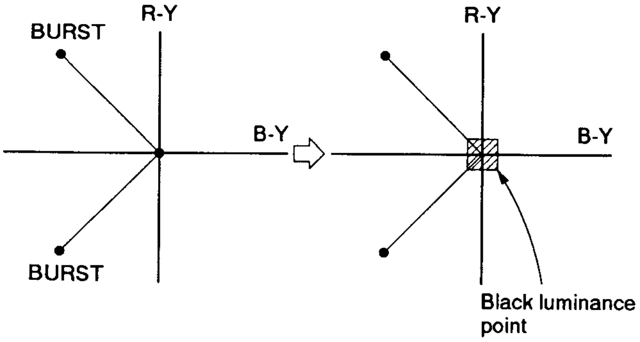


Fig. 7-10.

7) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 21 to page: F, address: AF and press the PAUSE button of the adjusting remote control unit.
   (Release of Y sampling output mode)
2) Set data: 00 to page: 1, address: E6.
   Set data: 00 to page: 1, address: E7.
   (Release of sampling position setting)
3) Set data: 00 to page: 6, address: 01.
   Press the PAUSE button of the adjusting remote control unit. (Release of IRIS CLOSE mode)

15. Carrier Balance Adjustment

Subject	Not required
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	03 (CS SL)
Specified Value	The center of the black luminance point should lie within the 1 ϕ circle whose center is the principle point.

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01.
2) Set data: 07 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE, AGC MAX mode setting)
3) Change the data of page: F, address: 03, and adjust so that the center of the black luminance point coincides with the principle point.
4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS NORMAL mode setting)

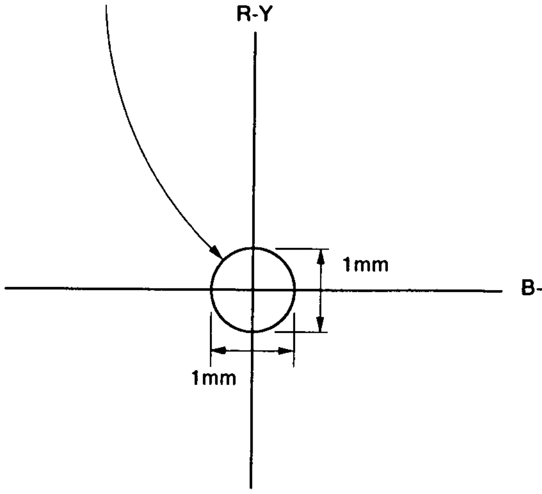

The center of the black luminance point should be within this circle.

Fig. 7-11.

16. Picture Frame Setting

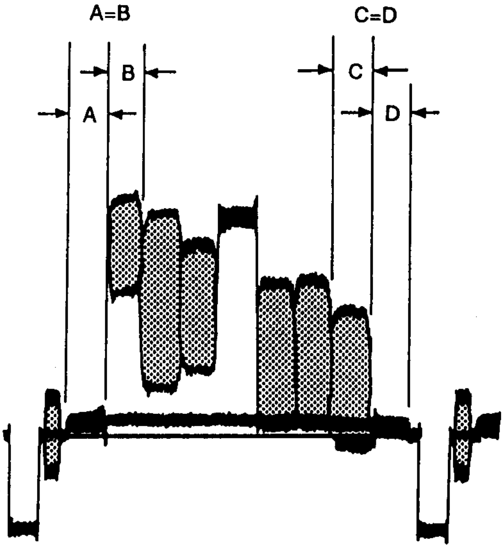
Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor.
Specified Value	A=B, C=D, t=0 ± 0.1 msec

Setting method:

1) Turn the auto focus off.
2) Adjust the focus using the focus knob.
3) Adjust the zoom and the camera direction, and set to the specified position.
4) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "color bar chart standard picture frame" and "white pattern standard picture frame".

Check on the oscilloscope

1. H period



2. V period

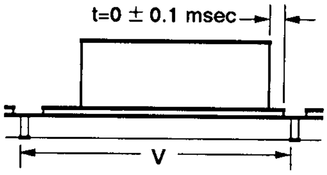


Fig. 7-12.

Check on the TV monitor (under-scan mode)

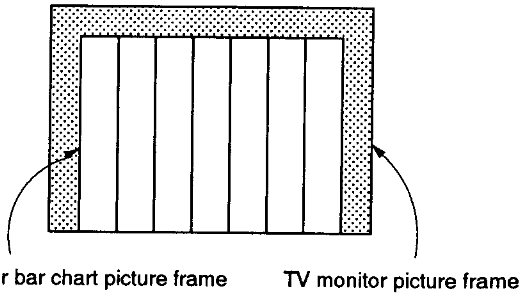

Color bar chart picture frame
TV monitor picture frame

Fig. 7-13.

17. IRIS Level Adjustment (VC-126 board)

Subject	Color bar standard picture frame
Measurement Point	Pin ⑪ of CN701 (IRIS OUT)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	63 (AGC MIN)
Specified Value	A=200 ± 5 mV

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Change the data of page: F, address: 63, and adjust so that the IRIS OUT signal level (A) becomes the specified value.
3) Press the PAUSE button of the adjusting remote control unit.

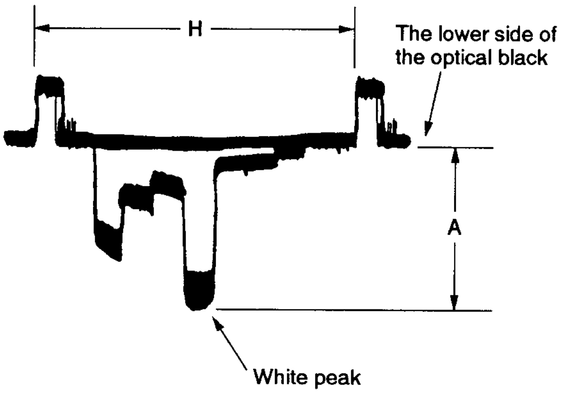


Fig. 7-14.

18. MAX GAIN Adjustment (VC-126 board)

Subject	Color bar standard picture frame
Filter	ND filter 1.0 (2 sheets) and 0.4 (1 sheet), 0.1 (1 sheet)
Measurement Point	Pin ⑱ of CN701 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	64 (AE MIN L)
Specified Value	A=165 ± 5 mV

Adjusting method:

1) Place the ND filter 2.5 (1.0+1.0+0.4+0.1) on the lens.
2) Release the protect.
   Page: 6, address: 00, data: 01
2) Change the data of page: F, address: 64, and adjust so th the CAM Y signal level (A) becomes the specified value.
   Note: If the CAM Y signal level does not satisfy tl specified value even if the data of Address: 64 is s to "00", set the data to "00".
4) Press the PAUSE button of the adjusting remote contr unit.

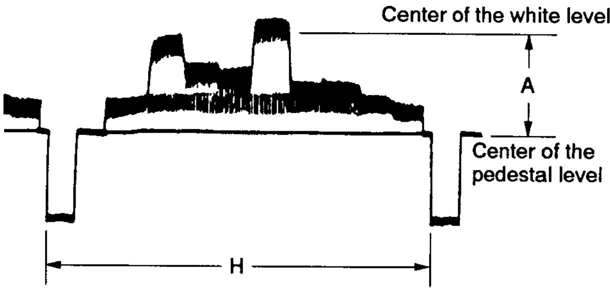


Fig. 7-15.

19. IRIS IN/OUT Adjustment

Subject	White pattern standard picture frame
Measurement Point	DDS display of the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	39 (AWB IRIS IN) 3A (AWB IRIS OUT)

Adjusting method:

1) Set data: 11 to page: 6, address: 00.
   (Camera adjustment mode (window ON) setting)
2) Set data: 40 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (HALL data display)
3) Set data: 0B to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (ND0.8 shutter mode setting)
4) Read the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or the TV monitor), and take it as D39.
5) Set data: D39 to page: F, address: 39, and press the PAUSE button of the adjusting remote control unit.
6) Set data: 09 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (ND0.5 shutter mode setting)
7) Read the DDS display data and take it as D3A.
8) Set data: D3A to page: F, address: 3A, and press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Release of the ND0.5 shutter mode)

20. Pre-white Balance Adjustment

Subject	White pattern standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	33 (R CONT REF), 34 (B CONT REF)
Specified Value	The center of the white luminance point should lie within the circle with a diameter of 1 mm whose center is the principle point

Adjusting method:

1) Set data: 0F to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (WB 3200K preset mode setting)
2) Set data: 11 to page: 6, address: 00.
   (Camera adjustment mode (window ON) setting)
3) Change the data of addresses:33 and 34 of page: F alternately, and coincide the white luminance point to the principle point.
   Note: Be sure to press the PAUSE button of the adjusting remote control unit before changing the addresses.
   If not, the new data will not written to the memory.
4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Release of the preset mode)
2) Set data: 10 to page: 6, address: 00.
   (Protect mode setting)

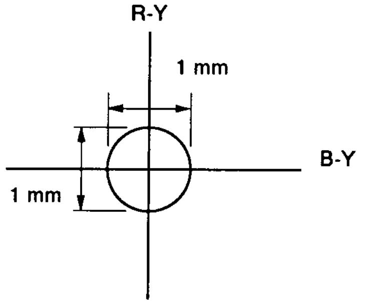


Fig. 7-16.

21. Color Reproduction Adjustment

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	18 (CORE B–Y GAIN), 19 (CORE R–Y GAIN), 1A (CORE R–Y HUE), 1B (CORE B–Y HUE)
Specified Value	All color luminance points should settle within each color reproduction frame.

Adjusting method:

1) Set data: 0F to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Indoor white balance mode setting)
2) Set data: 01 to page: 6, address: 00.
   (Camera adjustment mode (window OFF) setting).
3) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
4) Change the data of addresses 18 to 1B of page: F, and settle each color luminance point in each color reproduction frame.
   Note: Be sure to press the PAUSE button of the adjusting remote control unit before changing the addresses.
   If not, the new data will not be written to the memory.
5) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Release of the adjustment mode)
2) Set data: 10 to page: 6, address: 00.
   (Protect mode setting)

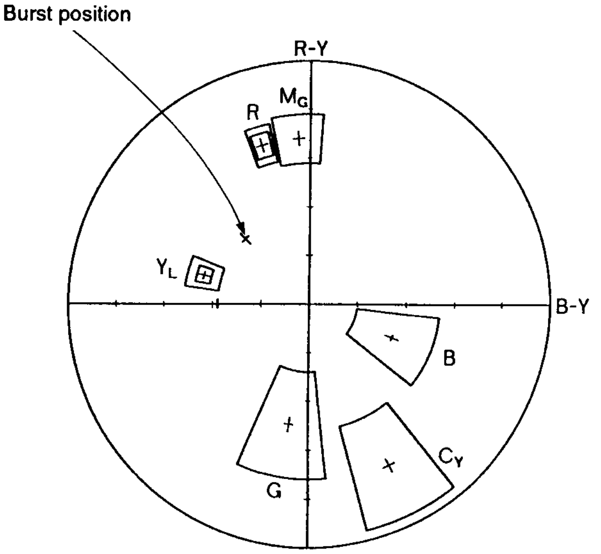


Fig. 7-17.

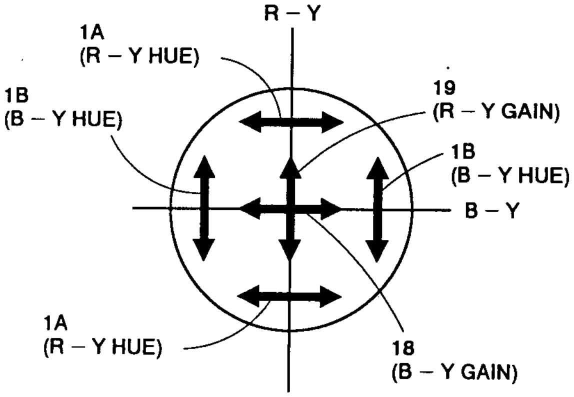


Fig. 7-18. Direction of the Movements of the Adjustment Address and Luminance Point

22. Auto White Balance Preset Adjustment

Subject	White pattern standard picture frame
Adjustment Page	F
Adjustment Address	2D (R REF L), 2E (R REF H), 2F (G REF L), 30 (G REF H), 31 (B REF L), 32 (B REF H)

Adjusting method:

1) Turn the power of the unit OFF/ON.
2) Check that the data of page: 6, address: 09 is 00.
   (Auto white balance preset adjustment possible display)
3) Set data: 11 to page: 6, address: 00.
   (Camera adjustment mode (window ON) setting)
5) Set data: 11 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (3200K preset data take in preparation mode)
6) Set data: 0D to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (When the 3200K preset data is taken in, the data will be automatically input to addresses 2D to 32 of page F.)
7) Check that the data of page: 6, address: 09 is 01.
   (Auto white balance preset adjustment completion display)
8) Perform "Auto White Balance Adjustment".

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Release of the auto white balance preset mode)
2) Set data: 10 to page: 6, address: 00.
   (Release of camera adjustment mode)

23. Auto White Balance Adjustment

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	Check with the DDS display on the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	35 (AWB NORM R) 36 (AWB NORM B)
Specified Value	R ratio 2980 ± 40 B ratio 5C80 ± 40

Note: Perform this adjustment after "Auto White Balance Preset Adjustment".

Adjusting method:

1) Set data: 11 to page: 6, address: 00.
   (Camera adjustment mode (window ON) setting)
2) Set data: D0 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
   (Auto white balance adjustment mode setting)
3) Set data: 82 to page: F, address: AF.
   (R ratio display mode setting)
4) Change the data of page: F, address: 35, and adjust the average value of the DDS display data (the display data at the bottom right of the EVF or the TV monitor) to 2980 ± 40.
5) Press the PAUSE button of the adjusting remote control unit.
6) Set data: 83 to page: F, address: AF.
   (B ratio display mode setting)
7) Change the data of page: F, address: 36, and adjust the average value of the DDS display data to 5C80 ± 40.
8) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
   (Release of the white balance adjustment mode)
2) Set data: 21 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (Release of the B ratio display mode)
3) Set data: 10 to page: 6, address: 00.
   (Release of camera adjustment mode)

24. White Balance Check

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 7-19. A to C

Checking method:

1) Check that the lens is not covered with either filter.
2) Set data: 11 to page: 6, address: 00.
   (Camera adjustment mode (window ON) setting)
3) Set data: 0F to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Indoor white balance mode setting)
4) Check that the center of the white luminance point is within the circle shown in Fig. 7-19.A.
   (Indoor white balance check)
5) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Auto white balance mode setting)
6) Set data: 01 to page: F, address: 5C, and press the PAUSE button of the adjusting remote control unit.
   (Auto white balance high speed tracking mode setting)
7) Set data: 91 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (R, B ratio (M) display mode setting)
8) Check that the top 2 digits and the bottom 2 digits of the DDS display are 3D to 43, or check that the center of the white luminance point is within the circle shown in Fig. 7-19. A.
9) Place the C14 filter on the lens.
10) Check that the center of the white luminance point settles in the circle shown in Fig. 7-19. B.
    (Auto white balance outdoor mode check)
11) Remove the C14 filter, and place the ND filter 1.3 (1.0+0.3) on the lens.
12) Check that the center of the white luminance point settles in the circle shown in Fig. 7-19. C.
    (Auto white balance indoor mode check)

Processing after completing adjustments

1) Set data: 0C to page: F, address: 5C, and press the PAUSE button of the adjusting remote control unit.
   (Release of the auto white balance fast tracking mode)
2) Set data: 21 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (Release of the R, B ratio (M) display mode setting)
3) Set data: 10 to page: 6, address: 00.
   (Release of camera adjustment mode)

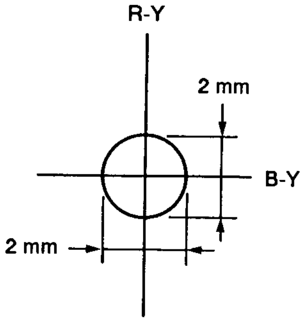


Fig. 7-19. A

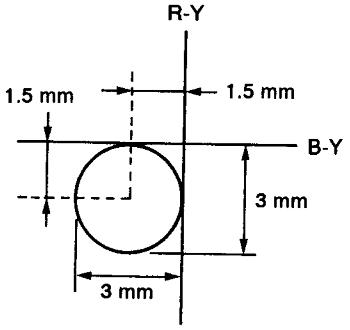


Fig. 7-19. B

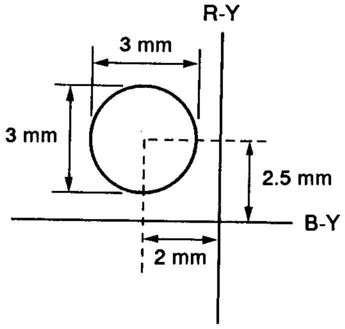


Fig. 7-19. C

25. Linear Matrix Adjustment

Subject	Color bar standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	DDS display on the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3D (DMAT HUE) 3E (DMAT GAIN)

Note 1: Check that position of the color bar chart picture frame that was set in "16. Picture Frame Setting" is maintained, before beginning adjustments.

Adjusting method:

1) Remove the filter C14 for color temperature correction.
2) Release the protect.
   Page: 6, address: 00, data: 01
3) Color bar data sampling mode setting
   1. Check that the data of page: 6, address: 01 is 00.
   2. Set data: F1 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
   3. Set data: 3A to page: F, address: 14, and press the PAUSE button of the adjusting remote control unit.

   (Check that the colors on the monitor display at the color modulation stop mode setting have disappeared)
4) Specifying the Yellow position
   1. Set data: C9 to page: 1, address: E6.
   2. Set data: B6 to page: 1, address: E7.
5) Set data: 02 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (R–Y data display mode setting)
6) Read the average value of the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or TV monitor, Note 2), and take it as Y_1.
7) Specifying the Red position
   1. Set data: 59 to page: 1, address: E6.
   2. Set data: 6D to page: 1, address: E7.
8) Read the average value of the DDS display data (Note 2), and take it as R_1.

   Note 2: DDS is displayed only when the adjusting remote control unit is displaying page F or page E.
9) Place the filter C14 for color temperature correction on the lens. (Ensure that the picture frame of the chart does not shift at this time.)
10) Specifying the yellow position.
    1. Set data: C9 to page: 1, address: E6.
    2. Set data: B6 to page: 1, address: E7.
11) Read the average value of the DDS display data (Note 2), and take it as Y_2.
12) Convert Y_1, R_1, Y_2 to decimal notation to obtain Y_1', R_1' and Y_2'.
    (Refer to Table 7-7. "Hexadecimal notation-decimal notation conversion table")
13) Calculate X_1' from the following equation (decimal notation calculation).
    $X_1'=Y_2'-Y_1'$
14) Calculate D3D from the following table.
    (D3D is hexadecimal notation)

X_1' value	D3D
$-1 \leqq X_1' \leqq 1$	F0
$X_1'>1$	F1
$X_1'<-1$	FF

15) Set data: D3D to page: F, address: 3D, and press the PAUSE button of the adjusting remote control unit.
16) Specifying the Red position
    1. Set data: 59 to page: 1, address: E6.
    2. Set data: 6D to page: 1, address: E7.
17) Read the average value of the DDS display data (Note 2), and take it as R_2.
18) Convert R_2 to decimal notation to obtain R_2'.
19) Calculate X_2' from the following equation (decimal notation calculation).
    $X_2'=R_2'-R_1'$
20) Calculate D3E from the following table.

X_2' value	D3E
$X_2' \geqq 0$	00
$0>X_2' \geqq -1$	01
$-1>X_2'$	02

21) Set data: D3E to page: F, address: 3E, and press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
   (Release of the sampling mode)
2) Set data: 38 to page: F, address: 14, and press the PAUSE button of the adjusting remote control unit.
   (Color modulation ON mode setting)
3) Set data: 21 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (Release of the R–Y data display mode)
4) Turn the main power supply (6.3V) off.

Note 3: As the R–Y data and B–Y data are displayed alternatively, it will be difficult to read the R–Y data. Record this data on a tape, and perform frame advancing playback so that only the R–Y data is read.
(Example)
If the frame advancing playback is performed, the following will be displayed.
$\underline{81} \rightarrow 7A \rightarrow \underline{82} \rightarrow 7A \rightarrow \underline{80} \rightarrow 7A \rightarrow \underline{81} \rightarrow 7C \rightarrow \underline{81} \rightarrow 79$
As the R–Y data is above 80, and the B–Y data is below 7F, the data which is underlined is the R–Y data. If the average value is calculated, the R–Y data will become 81.

26. VIDEO OUT Level Check

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal (Terminated at 75 Ω)
Measuring Instrument	Oscilloscope
Specified Value	Y level=640 ± 50 mV SYNC level=300 ± 20 mV BURST level=300 ± 30 mVp-p

Checking method:

1) Check that the Y level, SYNC level and BURST level satisfy the specified values.

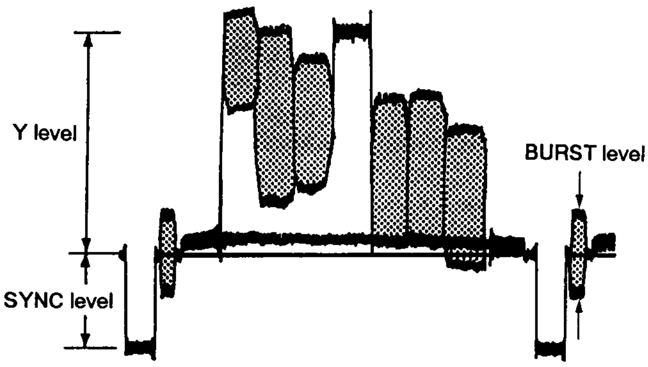


Fig. 7-20.

27. Title Color Reproduction Adjustment

Subject	All black (Cover the lens with a black cap)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	D
Adjustment Address	14 (BLU R–Y), 15 (BLU B–Y), 16 (GRN R–Y), 17 (GRN B–Y), 18 (CYN R–Y), 19 (CYN B–Y), 1A (RED R–Y), 1B (RED B–Y), 1C (VIO R–Y), 1D (VIO B–Y), 1E (YEL R–Y), 1F (YEL B–Y)
Specified Value	Each title color luminance point should settle within each color reproduction frame.

Note: For details on the page D address list, refer to "Service mode" in "Video Section Adjustments".

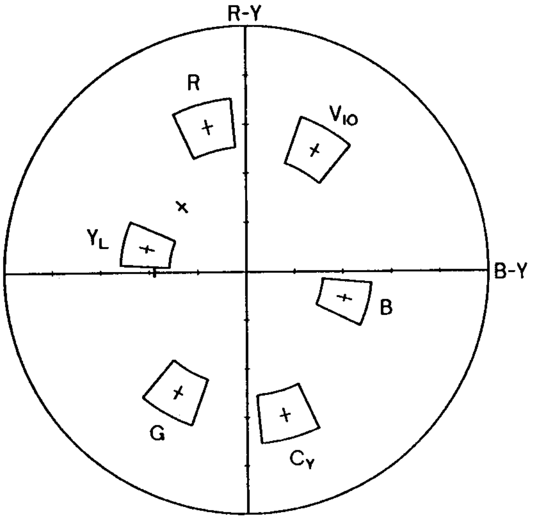


Fig. 7-21.

Adjusting method:

1) Release the protect of page D.
   Page: 1, address: 00, data: 01
2) Press the superimpose button "memory".
3) Adjust the HOLD switch of the adjusting remote control unit to "NORMAL" (left).
4) Use the "color/mode" button to change the title color to "blue".
5) Adjust the HOLD switch of the adjusting remote control unit to "SERVICE" (right).
6) Change the data of addresses 14 and 15 of page D, and and settle the blue luminance points within the blue (B) color reproduction frame.
   Note: Be sure to press the PAUSE button of the adjusting remote control unit before changing the address.
   If not, the new data will not be written in the memory.
7) Press the PAUSE button of the adjusting remote control unit.
8) Adjust for green (addresses 16, 17), cyan (addresses 18, 19), red (addresses 1A, 1B), violet (addresses 1C, 1D) and yellow (addresses 1E, 1F) in the same way.
9) Remove the adjusting remote control unit, change the titler color, and check that each title color luminance point is within the color reproduction frame.

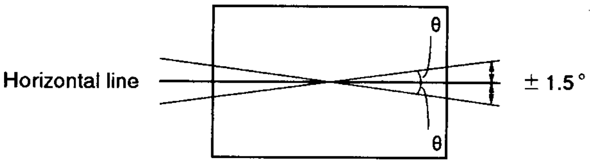
7-3. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

7-3-1. Horizontal Slant Adjustment

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Specified Value	Refer to Fig. 7-22.

Adjusting method:

1) Adjust RV504 (BRIGHT) so that the CRT can be seen easily and clearly.
2) Loosen the DY (deflection yoke) tightening nut.
3) Rotate DY, and adjust the image so that it is horizontal.
4) Tighten the DY tightening nut.
   (Do not tighten it too tightly.)



Specified value: The image should be within ± 1.5° of the horizontal line.

Fig. 7-22.

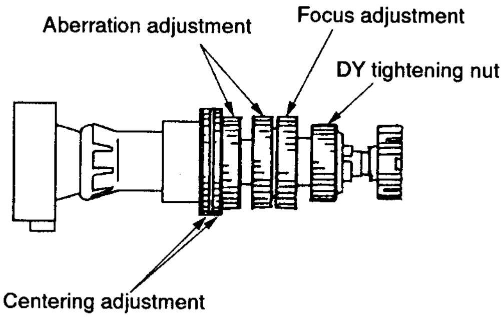


Fig. 7-23.

7-3-2. Centering Adjustment

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Specified Value	Refer to Fig. 7-24.

Adjusting method:

1) Use the centering adjustment ring and adjust so that the left, right, top, and bottom sides of the display are uniform. (Refer to Fig. 7-23.)

   Note: As the centering position changes due to earth magnetism, rotate it 360 ° in the horizontal direction, and adjust with the center section of the modifying position.

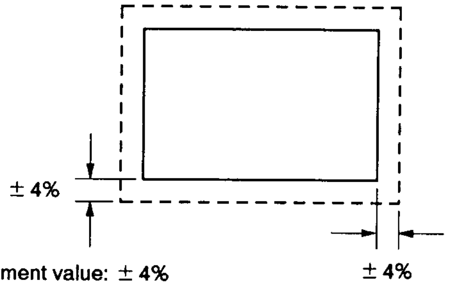


Fig. 7-24.

7-3-3. Focus Adjustment

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section

Adjusting method:

1) Adjust the focus ring to obtain the optimum focus.
   (Refer to Fig. 7-23.)

7-3-4. Aberration Adjustment

Model	E-E
Signal	Dot pattern
Specified Value	Refer to Fig. 7-25.

Adjusting method:

1) Adjust the aberration adjustment ring so that the tracing of the dot becomes less than twice the diameter of the dot, or the fan aberration becomes less than the diameter of the dot.
2) If the centering becomes displaced here, perform the centering adjustment from the beginning again.

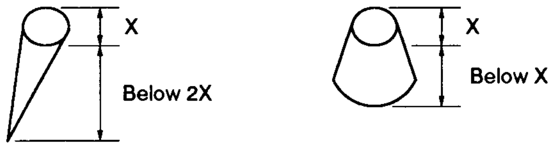


Fig. 7-25.

7-3-5. Horizontal Oscillation Frequency Adjustment (VF-42 board)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE)
Measurement Point	Positive pole terminal of C516
Measuring Instrument	Digital voltmeter or oscilloscope (DC range)
Adjustment Element	RV501
Specified Value	2.30 ± 0.05 Vdc

Adjusting method:

1) Adjust to 2.30 ± 0.05 Vdc using RV501.

7-3-6. Horizontal Amplitude Adjustment (VF-42 board)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Adjusting Element	C504
Specified Value	6 ± 2%

Adjusting method:

1) Rotate RV502, and adjust the top and bottom sides of the monoscope image to the top and bottom edges of the display.
2) Rotate RV504 so that the brightness is the normal level.
3) Adjust the pattern (A) of the H size adjustment capacitor (C504) to "short" or "open", so that the horizontal direction over scan becomes 6 ± 2% (Left and right totals). (Refer to Fig. 7-27.)

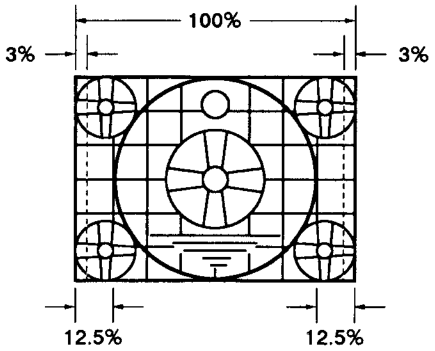
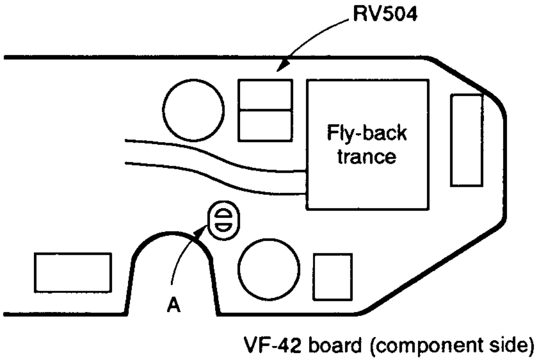


Fig. 7-26.



Section A	Size H
Open	Small
Short	Big

Fig. 7-27.

7-3-7. Vertical Amplitude Adjustment (VF-42 board)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Adjusting Element	RV502
Specified Value	5 ± 2%

Adjusting method:

1) Adjust RV502 so that the vertical direction over scan becomes 5 ± 2% (Top and bottom totals).

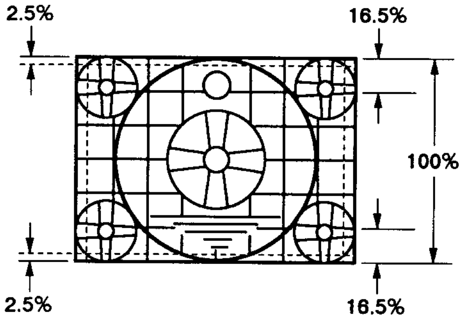


Fig. 7-28.

7-3-8. Brightness, Contrast Adjustments (VF-42 board)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Adjusting Element	Brightness: RV504 Contrast: RV503

Adjusting method:

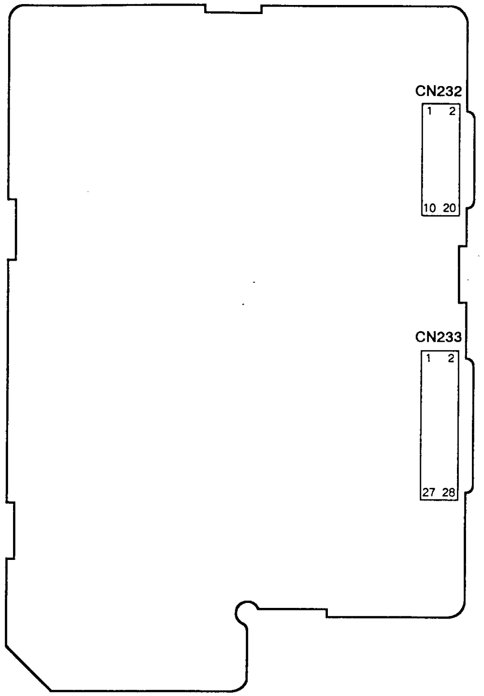
1) Rotate RV504 and RV503 alternately, and adjust so that the bright/dark sections of the gray scale are displayed correctly. (The bright section should not be so bright that the cross hatch in the monoscope circle appears vague. The dark section should not be so dark that the darkest section and the second darkest section of the gray scale cannot be differentiated.)

7-3-9. Horizontal Amplitude, Vertical Amplitude, Focus Check

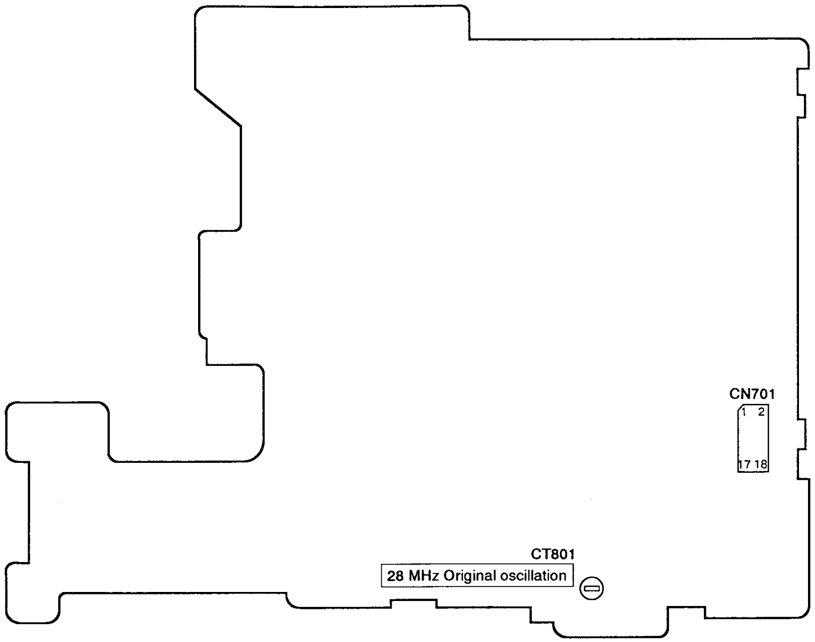
"7-3-6. Horizontal Amplitude Adjustment" and "7-3-7. Vertical Amplitude Adjustment" should both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform "7-3-8. Brightness, Contrast Adjustments" again. Moreover, check the focus, and if it found to be vague, perform "7-3-3. Focus Adjustment" and "7-3-4. Aberration Adjustment".

7-4. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

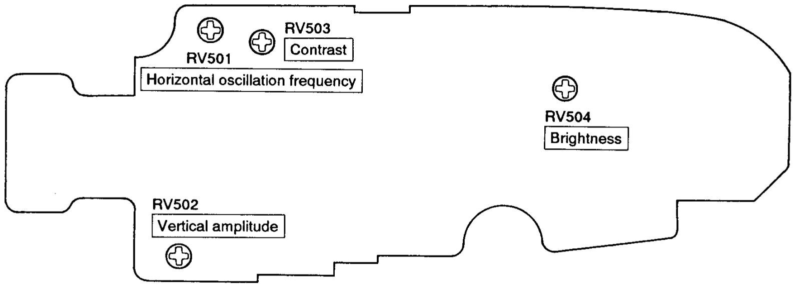
DD-52 BOARD (COMPONENT SIDE)


CN232
1 2
10 20
CN233
1 2
27 28

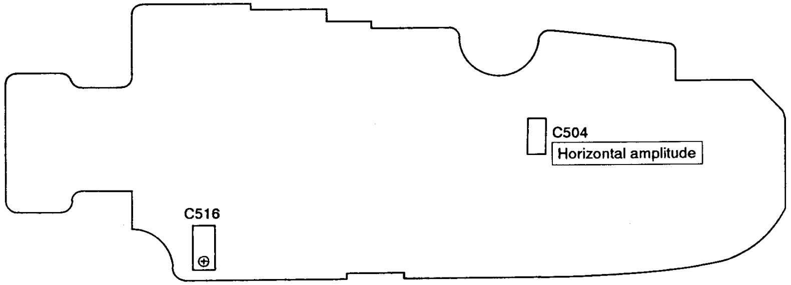
VC-126 BOARD (COMPONENT SIDE)


CN701
1 2
17 18
CT801
28 MHz Original oscillation

VF-42 BOARD (COMPONENT SIDE)


RV503
Contrast
RV501
Horizontal oscillation frequency
RV504
Brightness
RV502
Vertical amplitude

VF-42 BOARD (CONDUCTOR SIDE)


C504
Horizontal amplitude
C516

SECTION 8
MECHANICAL SECTION ADJUSTMENTS

Mechanical Section Adjustments

For details on the adjustments and checks of mechanical section and the mechanical parts, refer to the separate volume-"8 MM Video Mechanical Section Adjustment Guide II FL mechanism (Q mechanism)".

8-1. OPERATING WITH THE CASSETTE COMPARTMENT HOLDER ASSEMBLY REMOVED (Refer to Fig. 8-1.)

1. Loading

1) Refer to "2. Removal", and supply the power with the external section removed (however, leave the cabinet (R) connected so that the adjusting remote control unit can be connected.). (So that the mechanical deck section can be operated.)
2) Connect the adjusting remote control unit, and turn ON the HOLD switch.
3) Select page: 1, address: 00, and set data: 01. (Release of the protect)
4) Select page: D, address: 01, and set data: 01. (Test mode 1 setting)
5) Press the PAUSE button of adjusting remote control unit.
6) Turn off the HOLD switch of the adjusting remote control unit. (The adjusting remote control unit can be disconnected after this.)
7) The unit will be set into the loading mode when the lock board release arm ① is pressed in the direction of the arrow.
(To set the unit into the record mode, hold the push switch ② in place with the cohesion tape ③ before performing this operation.)
8) After completing all operations, be sure to perform "5. Processing after completing operations".

2. Setting the unit into the playback condition

1) Perform steps 1) to 7) of "1. Loading".
2) Press the playback button.

3. Setting the unit into the recording condition

1) Perform steps 1) to 7) of "1. Loading".
2) Press the record switch.

Note: Refer to "VIDEO SECTION ADJUSTMENT" to set the models without the record switch into the record condition.

4. Ejecting

1) Press the EJECT button.

5. Processing after completing operations

1) Connect the adjusting remote control unit, and turn on the HOLD switch.
2) Select page: 1, address: 00, and set data: 01.
3) Select page: D, address: 01, and set data: 00.
4) Press the PAUSE button of the adjusting remote control unit.
5) Remove the power supply from the unit.

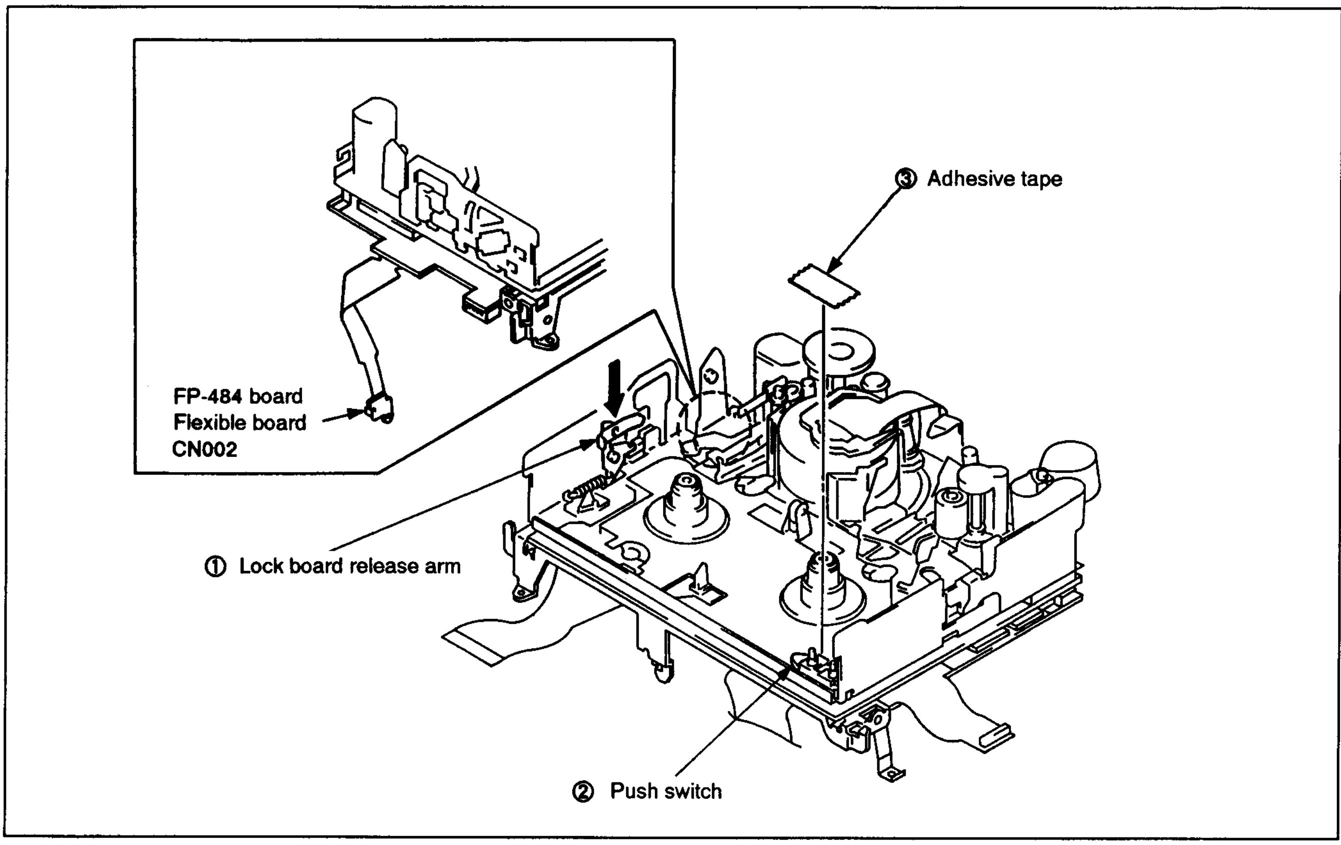

③ Adhesive tape
FP-484 board
Flexible board
CN002
① Lock board release arm
② Push switch

Fig. 8-1.

8-2. TAPE PATH ADJUSTMENT

1. Preparations for adjustment

1) Clean the tape path face (tape guide, drum, capstan shaft, pinch roller).
2) Connect the adjusting remote control unit to the remote terminal (LJ-6 board J511).
3) Turn on the HOLD switch of the adjusting remote control unit.
4) Select page: 1, address: 00, and set data: 01.
(Release of the protect)
5) Select page: D, address: 01, and set data: 03.
(Set the track shift mode. The adjusting remote control unit can be disconnected if its PAUSE button is pressed. In this case, be sure to perform "8-1-5. Processing after completing operation" after completing adjustments.)
6) Connect the oscilloscope.
Channel 1-FP-484 board Pin ⑭ of CN002
External trigger-FP-484 board Pin ⑨ of CN002
(Connect the oscilloscope via the measuring pin for the video section (J-6082-140-A).)
7) Playback the alignment tape (WR5-1CP) for tracking.
8) Check that the RF waveform of the oscilloscope is flat at both the entrance and the exit sides.
If not, perform the following adjustment.
9) Perform "8-1-5. Processing after completing operations", after completing adjustments.

FP-484 board CN002

1	LANC SIG
2	N.C.
3	RF GND
4	CAP FG
5	REC 1B
6	REC 2B
7	REC 1A
8	REC 2A
9	RF SWP
10	$\overline{\text{1/2 RF SWP}}$
11	PB RF CH1
12	PB RF CH2
13	RF GND
14	PB RF OUT

SECTION 9

VIDEO SECTION ADJUSTMENT

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 298.

9-1. PREPARATIONS BEFORE ADJUSTMENT

The following adjusting instruments are used for adjusting the video section.

9-1-1. Equipments to be used

1) TV monitor
2) Oscilloscope: 2 phenomena, band 30 MHz or wider, with delay mode. (Use a 10:1 probe unless specified otherwise.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuater
10) Regulated power supply
11) Alignment tape
    - For tracking adjustment (WR5-1CP)
      Part Code: 8-967-995-07
    - For normal mode video frequency characteristics adjustment (WR5-6C)
      Part Code: 8-967-995-17
    - For Hi8 mode video frequency characteristics adjustment (WR5-7CE)
      Part Code: 8-697-995-18
    - For checking normal mode operations
      For SP (WR5-5CSP)
      Part Code: 8-967-995-47
      Or (WR5-4CSP)
      Part Code: 8-967-995-46
      For LP (WR5-4CL)
      Part Code: 8-967-995-56
      For checking AFM stereo operations (WR5-9CS)
      Part Code: 8-967-995-28
    - For checking Hi8 mode operations (ME tape)
      For SP (WR5-8CSE)
      Part Code: 8-967-995-48
      For LP (WR5-8CLE)
      Part Code: 8-967-995-57
12) Adjusting remote control unit (J-6082-053-A)
13) Measuring pin jig for video section
    Part Code: J-6082-140-A
14) CF-29 board extension cord (48P, 0.8 mm)
    Part code: J-6082-177-A

9-1-2. Precautions Upon Adjustments

The EVF (Electronic viewfinder) section is not required for adjusting the video section.
Remove the following connector if removing the EVF section.

1. CN301 of VS-98 board (Pin 4)

The front panel assembly is not required for adjusting the video section.
Remove the following connectors if removing the front panel assembly.

1. CN902 of MA-109 board (Pin 8)
2. CN903 of MA-109 board (Pin 3)
3. CN401 of RM-54 board (Pin 3)

Cabinet (R) is necessary for connecting the adjusting remote control unit.
Use the CF-29 board extension cord (J-6082-177-A) when adjusting the video circuit and audio circuit.

Cabinet (L) is not required. Remove it.

The audio board (AU-143 board) is only required for "Audio System Adjustment" and the "REC AFM Level Check" of "Video System Adjustment". Remove the following connectors.

1. CN603 of AU-143 board (Pin 30)
2. CN602 of AU-143 board (Pin 3)

The lens block (Including the VD-21 and SE-22 boards) is only required for "Power Supply System Adjustment". Remove the following connectors and one mounting screw, and remove it from the VC-126 board.

1. CN002 of VD-21 board
2. CN851 of VC-126 board
3. CN801 of VC-126 board

9-1-3. Connectors for Adjustments (FP-484 board CN002)

Some video section adjustment points are concentrated on the FP-484 board CN002. Connect the measuring instrument via a measuring pin jig (J-6082-140-A).

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	RF GND
3	REC 1B	4	REC 1A
5	RF SWP	6	PB RF CH1
7	RF GND	8	N.C
9	CAP FG	10	REC 2B
11	REC 2A	12	$\overline{\text{1/2 RF SWP}}$
13	PB RF CH2	14	PB RF OUT

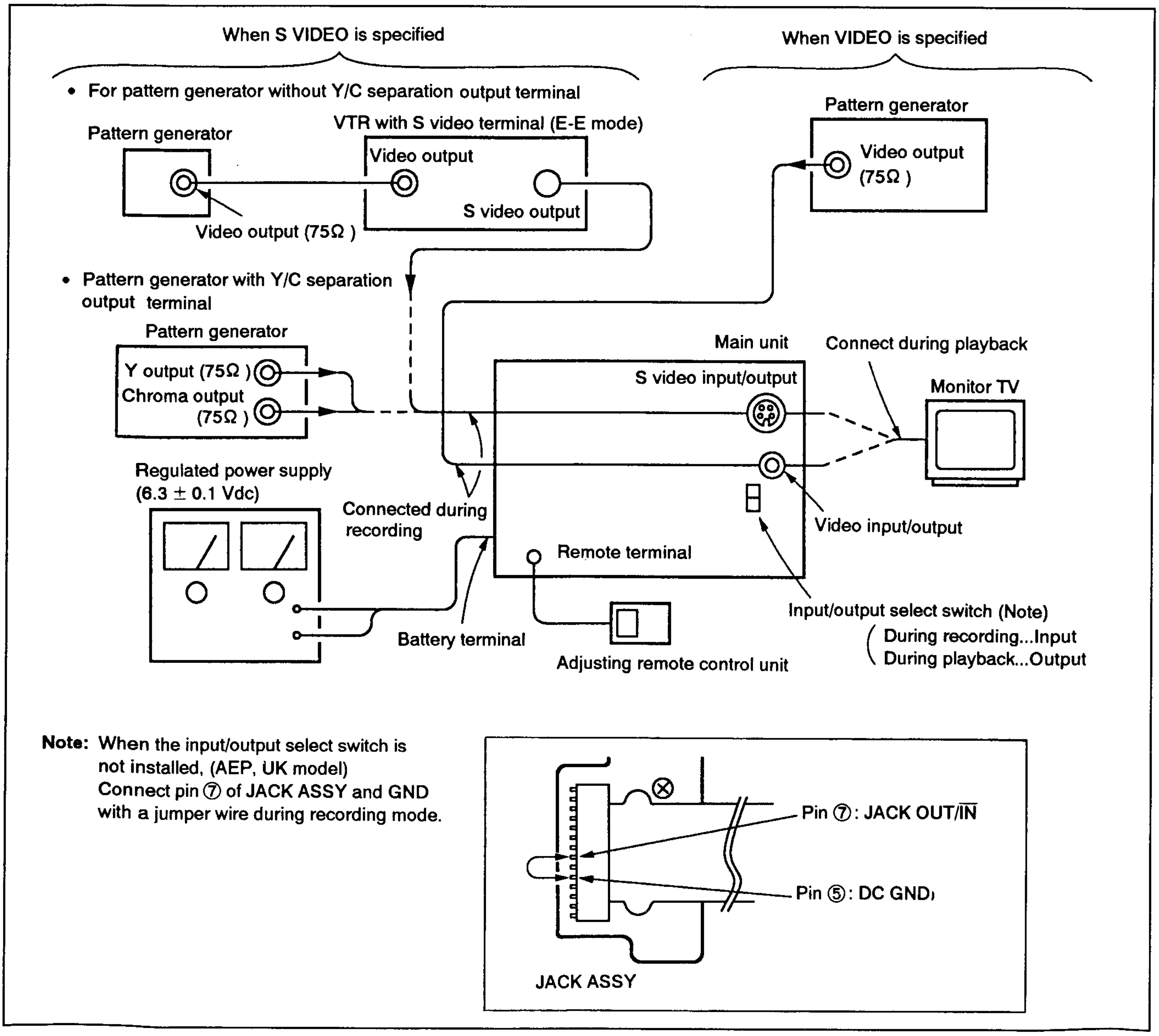
Table 9-1.

9-1-4. Connecting the Equipments

Connect the measuring instruments as shown in Fig. 9-1 according to the input terminal specifications (S VIDEO or VIDEO), adjust the power supply switch (CAMERA/OFF/PLAYER (or VTR)) (FK-51 board S119) to the "PLAYER" or "VTR" position, and perform the adjustments.

The input terminal is specified in the ( ) in the signal column. Either input terminal can be used when there are no specifications. However, the S video input terminal will have the priority. When adjusting with the video input terminal input, disconnect the connector from the S video input terminal.

Note: If the VIDEO input is used for adjustments which specify for the S VIDEO input to be used, the product specifications of the unit may not be satisfied in some cases. Be sure to perform according to the specifications. When adjustments are performed with the S video output terminal VTR as the signal source, the efficiencies of the unit may be affected by the VTR. It is recommended that a pattern generator with a Y/C separation output terminal be used as much as possible.


When S VIDEO is specified
When VIDEO is specified
• For pattern generator without Y/C separation output terminal
Pattern generator
VTR with S video terminal (E-E mode)
Video output
S video output
Video output (75Ω)
• Pattern generator with Y/C separation output terminal
Pattern generator
Y output (75Ω)
Chroma output (75Ω)
Regulated power supply (6.3 ± 0.1 Vdc)
Connected during recording
Battery terminal
Pattern generator
Video output (75Ω)
Main unit
Connect during playback
S video input/output
Monitor TV
Video input/output
Remote terminal
Input/output select switch (Note)
During recording...Input
During playback...Output
Adjusting remote control unit
Pin ⑦: JACK OUT/$\overline{\text{IN}}$
Pin ⑤: DC GND
JACK ASSY

Note: When the input/output select switch is not installed, (AEP, UK model) Connect pin ⑦ of JACK ASSY and GND with a jumper wire during recording mode.

Fig. 9-1.

9-1-5. How to Set the REC Mode in the Model without REC Switch

1. REC key forbidden accept mode cancel
   1. Connect the adjustment remote controller to the REMOTE terminal.
   2. Turn on the power.
   3. Turn on the HOLD switch of the adjustment remote controller.
   4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
   5. Select the page: D address: 02, and set the data to 83. (REC key forbidden accept mode cancel)
   6. Press PAUSE button on the adjustment remote controller. (Write to the non-volatile memory)

The REC key is accepted through the above procedure. The adjustment remote controller may be removed, hereafter.

2. REC mode setting
   1. Connect Pin ⑤ of CN924 (KEY IN 2) and Pin ④ of CN924 (KEY OUT 0) on VC-126 board with a jumper wire until the VTR is set to REC mode.

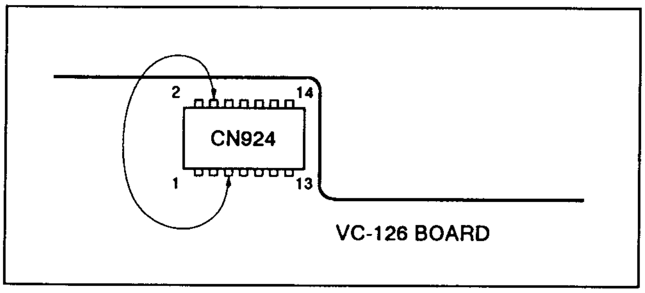

2
14
CN924
1
13
VC-126 BOARD

Fig. 9-2.

3. Procedure after completed the adjustment
   Be sure to return the mode to REC key forbideden accept mode after adjustment.
   1. Connect the adjustment remoter controller to the REMOTE terminal.
   2. Turn on the power.
   3. Turn on the HOLD switch of the adjustment remote controller.
   4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
   5. Select the page: D address: 02, and set the data to 82. (Setting of the REC key forbidden accept mode)
   6. Press PAUSE button on the adjustment remote controller. (Write to the non-volatile memory)

9-1-6. Checking the Input Signals

As the video signal obtained from the pattern generator is used as the adjusting signal for adjusting the VTR section, this video output signal must be within the given specifications.

1. For S VIDEO Input

Connect the oscilloscope to the Y signal terminal of the S vide input/output terminal, and check that the sync signal of the signal is approximately 0.3 Vp-p and that the amplitude of th video section is approximately 0.7 Vp-p. (When the VTR with S video output terminal is used, check that the chroma signal an burst signal have not remained as well.) Connect the oscilloscop to the chroma signal terminal of the S VIDEO IN terminal, an check that the burst signal amplitude of the chroma signal i approximately 0.3 Vp-p and flat, and that the amplitude ratio o the burst signal to the chroma signal is 0.30: 0.66. The Y an chroma signals used in the adjustment are shown in Fig. 9-3.

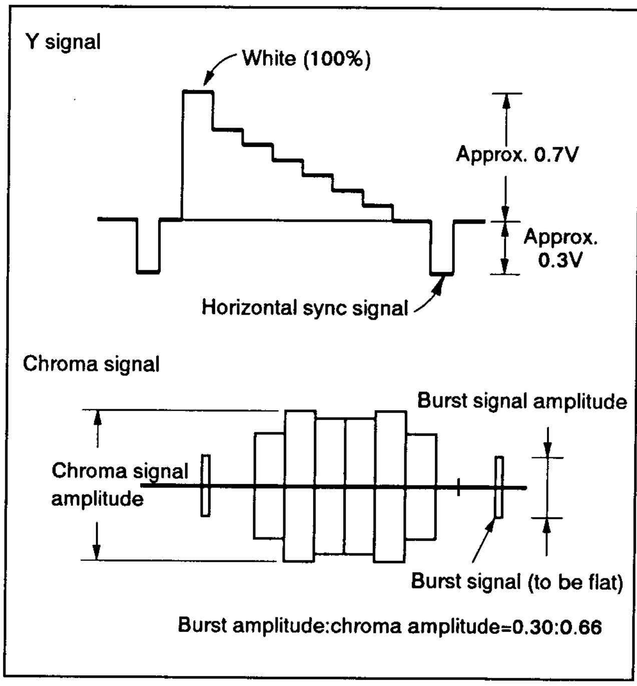

Y signal
White (100%)
Approx. 0.7V
Approx. 0.3V
Horizontal sync signal
Chroma signal
Burst signal amplitude
Chroma signal amplitude
Burst signal (to be flat)
Burst amplitude:chroma amplitude=0.30:0.66

Fig. 9-3. Color bar signal of pattern generator

2. For VIDEO Input

Connect the oscilloscope to the video input/output terminal, and check that the amplitude of the sync signal of the video signal is approximately 0.3V, the amplitude of the video section is approximately 0.7V, the amplitude of the burst signal is approximately 0.3V and flat, and that the level ratio of the burst signal and the [red] signal is 0.30: 0.66.

The video signal (color bar) used for electric adjustments of the VTR section is shown in Fig. 9-4.

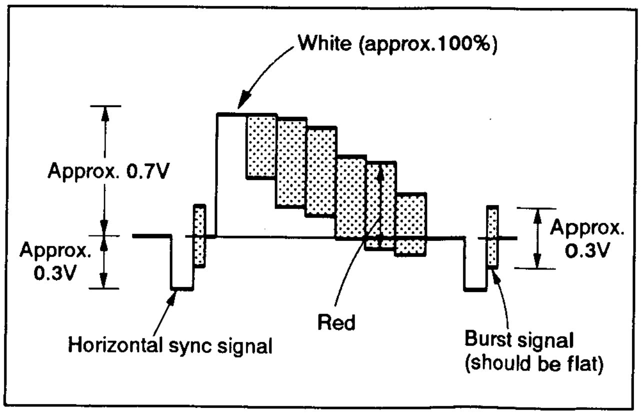

White (approx.100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Horizontal sync signal
Red
Burst signal (should be flat)

Fig. 9-4. Color bar signal of pattern generator

9-1-7. Alignment Tape

The following table lists alignment tapes which are available. Use the tape specified in the signal column for each adjustment. If the type of tape to be used for checking operations is not specified, use whichever type.

Name	Record-ing mode	Tape type	Tape speed	Recording contents		Usage
				Video area	PCM area	
Tracking WR5-1CP	L	MP	SP	CH2: Signal for 1 MHz tape path adjustment		Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7CE	E	ME	LP	RF sweep 0 to 15 MHz Marker 2, 4.5, 7, 8.5, 10 MHz		Frequency characteristics adjustment
Video frequency characteristics WR5-2C	L	MP	LP	RF sweep Marker 1, 3.58, 5.5, 7 MHz		
Operation check (SP mode) WR5-5CSP	L	MP	SP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) 400 Hz 60% modulation	• Audio signal (PCM) Monoscope section 20 Hz 20 sec. 400 Hz 20 sec. 14 kHz 20 sec. Repeated 4 times Color bar section 1 kHz 4 minutes	Checking operations
Operation check WR5-8CSE	E	ME	SP		• Audio signal (PCM) 400 Hz	
Operation check WR5-4CL	L	MP	LP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) 400 Hz 60% modulation		
Operation check WR5-8CLE	E	ME	LP		• Audio signal (PCM) 400 Hz	
AFM stereo Operation check WR5-9CS	L	MP	SP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) Stereo section (color bar) Lch: 400 Hz, Rch: 1 kHz L+R: 1.5 MHz ± 60 kHz DEV L–R: 1.7 MHz ± 30 kHz DEV Bilingual section (Monoscope) MAIN: 400 Hz (1.5 MHz ± 60 kHz DEV) SUB: 1 kHz (1.7 MHz ± 30 kHz DEV)	• Audio signal (PCM) 400 Hz 8 minutes	AFM stereo Checking operations

Note: Recording mode
L ·············· Normal (Conventional) mode
E ·············· hi8 (hi band) mode

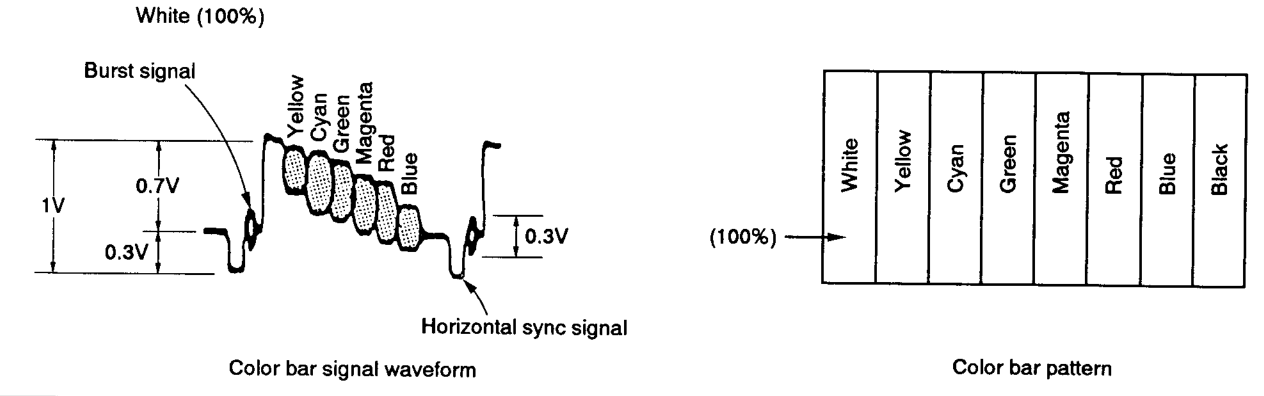
Tape type
MP············ Particle type metal tape
ME············ Evaporated type metal tape

Table 9-2.

Fig. 9-5. shows the 75% color bar signals recorded on the alignment tape.

Note: Measure using the video input/output termina (Terminated at 75 Ω)

Note: Measured at VIDEO OUT terminal (75Ω termination).



Color bar signal waveform

Color bar pattern

Fig. 9-5. Alignment tape color bar signal

9-1-8. Input/Output Level and Impedance

1. E, Australian, Tourist model

Video input	Pin jack Input signal: 1 Vp-p, 75Ω unbalanced, sync negative
Video output	Pin jack Output signal: 1 Vp-p, 75Ω unbalanced, sync negative
S video input	Four pins mini DIN Luminance signal: 1 Vp-p, 75Ω unbalanced, sync negative Color signal: 0.3 Vp-p, 75Ω unbalanced
S video output	Four pins mini DIN Luminance signal: 1 Vp-p, 75Ω unbalanced, sync negative Color signal: 0.3 Vp-p, 75Ω unbalanced
Audio input	Pin jack Input level: –7.5 dBs (0 dBs=0.775 Vrms) Input impedance: Above 47 kΩ
Audio output	Pin jack Specified output: –7.5 dBs Output impedance: Below 2.2 kΩ

2. AEP, UK model

Video output	Pin jack Output signal: 1 Vp-p, 75Ω unbalanced, sync negative
S video output	Four pins mini DIN Luminance signal: 1 Vp-p, 75Ω unbalanced, sync negative Color signal: 0.3 Vp-p, 75Ω unbalanced
Audio output	Pin jack Specified output: –7.5 dBs Output impedance: Below 2.2 kΩ

9-1-9. Record Mode (Normal/Hi8) Switchover

The record mode (Normal/Hi8) of this unit is switched as shown in the following table. The playback mode (Normal/Hi8) is switched automatically according to the record mode of the tape played back.

Hi8 Switch (CF-29 board S203)	Tape Used	Record Mode
Automatic	ME	Hi8
	Hi8 MP	
	MP	Normal
Off	ME	Normal
	Hi8 MP	
	MP	

Table 9-3.

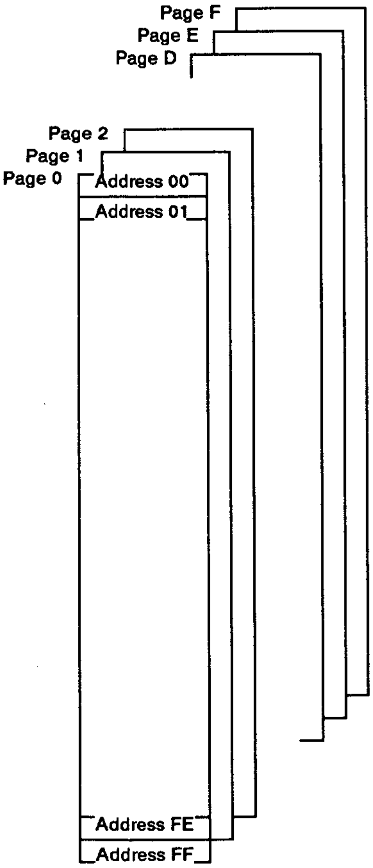
9-1-10. Service Mode

1. Setting the Service mode

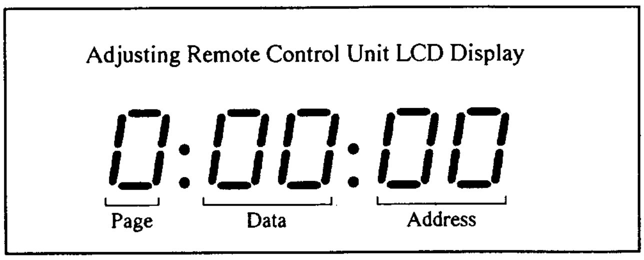
The service mode consists of the adjustment mode which adjusts the EVR and the test mode which displays the condition of the unit.

The unit can be shifted into the test mode and adjustment mode by connecting the adjusting remote control unit (set the HOLD switch to the HOLD side).

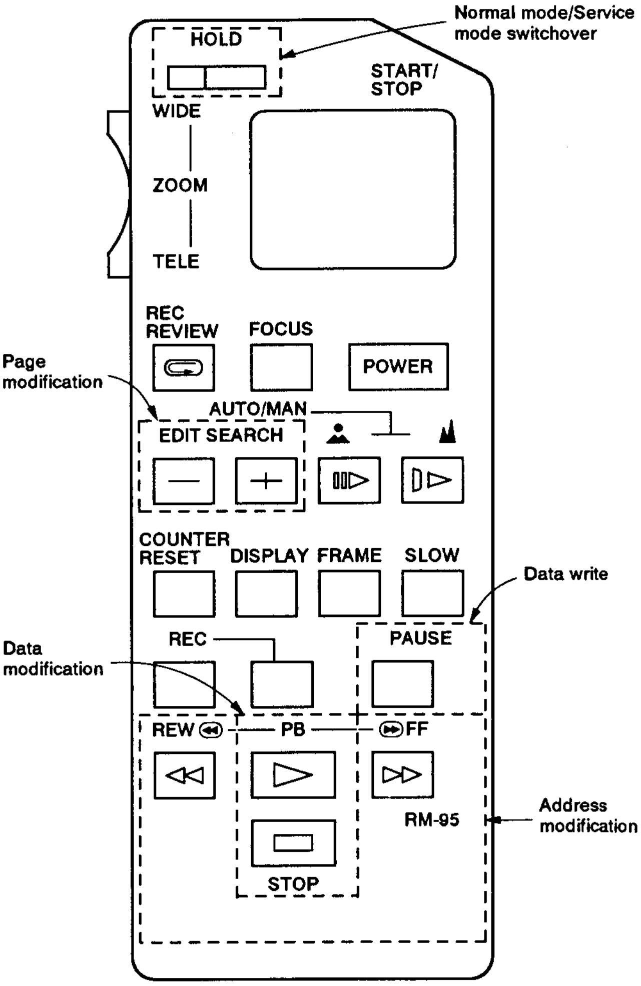
(1) Service LANC memory map


Page F
Page E
Page D
Page 2
Page 1
Page 0
Address 00
Address 01
Address FE
Address FF

Page	Page assignment
0	
1	Mode controller RAM, I/O (Note 1)
2	Mechanism controller RAM, I/O (Note 1)
3	
4	
5	
6	Camera controller RAM, I/O (Note 1)
7	
8	
9	
A	Camera controller RAM, I/O (Note 1)
B	
C	
D	VTR EE PROM (Note 2)
E	Camera EE PROM (VAP) (Note 3)
F	Camera EE PROM (Note 3)


Adjusting Remote Control Unit LCD Display
0:00:00
Page
Data
Address

Adjusting remote control unit RM-95 (J-6082-053-A)

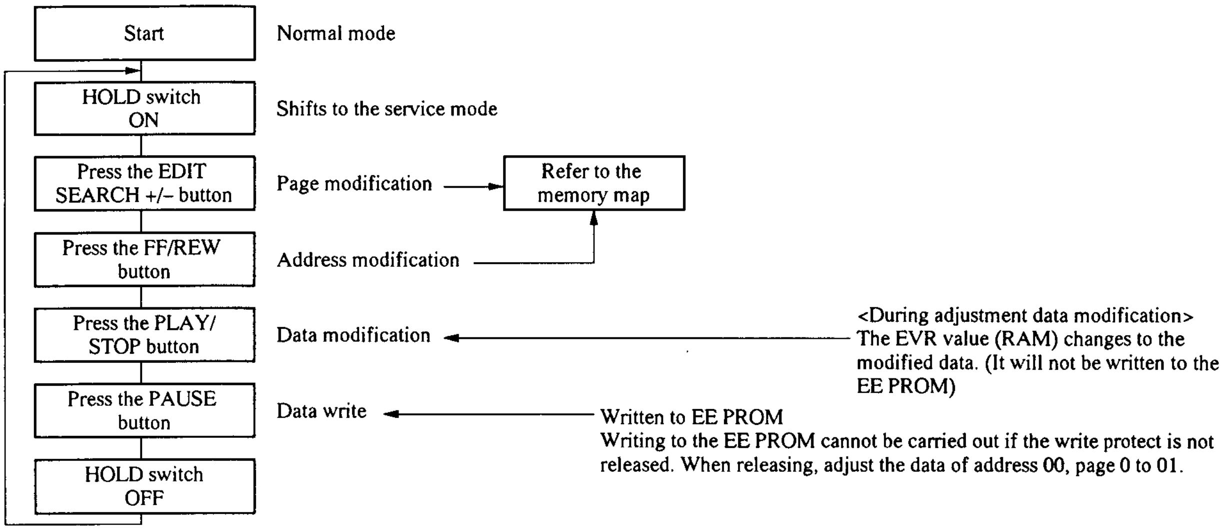

Normal mode/Service mode switchover
HOLD
START/STOP
WIDE
ZOOM
TELE
REC REVIEW
FOCUS
POWER
Page modification
AUTO/MAN
EDIT SEARCH
—
+
COUNTER RESET
DISPLAY
FRAME
SLOW
Data write
REC
PAUSE
Data modification
REW
PB
FF
RM-95
Address modification
STOP

Note 1: If the data of this page is rewritten using the adjusting remote control unit to set the adjustment mode or test mode, this data will not be written in the EEPROM (non-volatile memory). The original condition (normal condition) can be returned by removing the main power supply (6.3V).

Note 2: The data of this page is written in the EEPROM (VC-126 board IC923).

Note 3: The data of this page is written in the EEPROM (VC-126 board IC701).

Shifting to the Service Mode Using the Adjusting Remote Control Unit


Start
Normal mode
HOLD switch ON
Shifts to the service mode
Press the EDIT SEARCH +/– button
Page modification
Refer to the memory map
Press the FF/REW button
Address modification
Press the PLAY/ STOP button
Data modification
Press the PAUSE button
Data write
Written to EE PROM
HOLD switch OFF

<During adjustment data modification>
The EVR value (RAM) changes to the modified data. (It will not be written to the EE PROM)

Writing to the EE PROM cannot be carried out if the write protect is not released. When releasing, adjust the data of address 00, page 0 to 01.

Command Name	Command Function	Normal LANC command
Page Up	Page +1	Edit Search +
Page Down	Page –1	Edit Search –
Direc Page Set	Sets the specified page	Event Clear
Address Up	Address +1	Fast Forward
Address Down	Address –1	Rewind
Data Up	Data +1	Play Back
Data Down	Data –1	Stop
Store	Writes the data to the EE PROM. RAM	Pause

2. Page D Write Protect

Release/set the page D write protect.

Page 0	Address 00

Data	Function
00	Normal (Write protect condition)
01	Write protect release

3. Test Mode Setting

Each type of test mode is set/released. Release the protect (page: 1, address: 00, data: 01), before setting the data.

Page D (or Page 4)	Address 01

Data	Function
00	Normal
01	Test mode 1 Various emergency inhibition and release Drum, capstan, loading motor, reel, tape top, end, DEW SP/LP automatic distinction inhibition, manual switchover (EDIT SW ON: LP, OFF: SP) 5 minutes pause release inhibition Power off inhibition release by battery end
02	Test mode 2 Do not use
03	Test mode 3 Track shift Plays back the track shift Rear lock distinction inhibition during PB SP/LP automatic distinction inhibition, manual switchover (EDIT SW ON: LP, OFF: SP)
04	Test mode 4 Rear lock mode Rear lock playback is performed SP/LP automatic distinction inhibition, manual switchover (EDIT SW ON: LP, OFF: SP)
05	Test mode 5 SP/LP automatic distinction inhibition, manual switchover (EDIT SW ON: LP, OFF: SP)

※ Page: D and page: 4 have the same functions. However, the data cannot be written in the non-volatile memory (EEPROM) for page: 4.

※ This address data will be recorded on the non-volatile memory by pressing the PAUSE button on the adjusting remote control unit for page: D. Take note, as when this happens, the test mode will not be released even if the main power is turned off (6.3 Vdc).

※ Be sure to return the data of this address data to 00 after completing adjustments/repairs, and press the PAUSE button on the adjusting remote control unit.

4. Emergency code

Faults (errors) can be checked.

Page D	Address 06

First emergency code

……The first error code generated

Page D	Address 07

Last emergency code

…… The last error code generated (this data will be renewed each time an error occurs.)

※ Be sure to rewrite the data of addresses 06 and 07 to 00 after completing repairs/adjustments.

※ When rewriting data, be sure to press the PAUSE button of the remote control unit after setting the data.

Code	Error condition
00	No error
01	Loading motor error
02	Reel error during unloading
03	Other reel errors
04	Capstan error
05	FG error during drum start up
06	PG error during drum start up
07	FG error during drum regular condition
08	PG error during drum regular condition
09	Phase error during drum regular condition

5. Emergency mode

The operation mode during an error outbreak can be checked.

Page D	Address 08

First emergency mode
……The operation mode when the first error is generated

Page D	Address 09

Last emergency mode
……The operation mode when the last error is generated
(This data will be renewed each time an error occurs.)

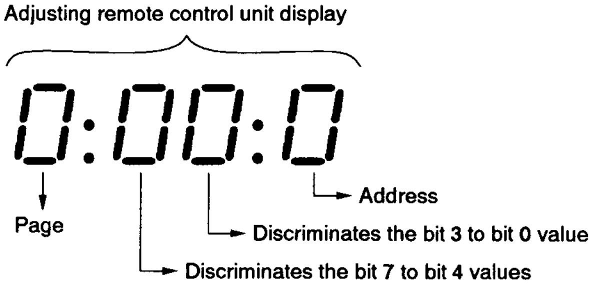
※ Be sure to rewrite the data of addresses 08 and 09 to 00 after completing repairs/adjustments.

※ When rewriting data, be sure to press the PAUSE button of the adjusting remote control unit after setting the data.

Code	Error condition
00	BEFOR INITIALIZE
01	EJECTED
02	NORMAL STOP
03	FF
04	NORMAL REC
06	NORMAL PB
07	PB PAUSE
12	LOADING
14	REC PAUSE
27	1/5 SLOW
31	UNLOADING
46	CUE
56	REVIEW
62	STOP TAPE END
67	FRAME
72	STOP TAPE TOP
83	REWIND
85	REC REVIEW(+)
95	REC REVIEW(–)
A2	EMERGENCY STOP
A5	EDIT SEARCH(+)
B1	EMERGENCY UNLOADING
B2	STOP EMERGENCY 1
B5	EDIT SEARCH(–)
C2	STOP EMERGENCY 2
E2	STOP NO CASSETTE
F5	EDIT PAUSE

6. Bit Value Discrimination

It is necessary to discriminate the bit values with the display dat on the adjusting remote control unit for the following items. Us the following table to discriminate if the bit value is "1" or "0".


Adjusting remote control unit display
0:00:0
Address
Page
Discriminates the bit 3 to bit 0 value
Discriminates the bit 7 to bit 4 values

	Remote Control Unit Display	Bit Value			
		bit 3 or bit 7	bit 2 or bit 6	bit 1 or bit 5	bit 0 or bit 4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A (A)	1	0	1	0
	B (b)	1	0	1	1
	C (c)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ→	E (E)	1	1	1	0
	F (F)	1	1	1	1

(Example) If the remote control unit display data is "8E", th bit value of bit7 to bit4 can be discriminated fro column Ⓐ, and that of bit3 to bit0 from column Ⓑ.

7. Cassette Compartment Lock Switch Check

Page 1	Address 23

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
					CC LOCK		

Bit2:
"0"=Up
"1"=Down (Lock)

8. Mechanism Section Switches Check, Etc.

Page 1	Address 3E

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
	Mode switch			REC PROOF	ME/MP	PB E/L	Hi8 MP
MSW C	MSW B	MSW A					

Bit3:
"1"=Record prohibited
"0"=Record possible

Bit2:
"1"=ME tape
"0"=MP tape

Bit1:
"1"=Hi8 mode playback
"0"=Others

Bit0:
"1"=Hi8 MP tape
"0"=Others

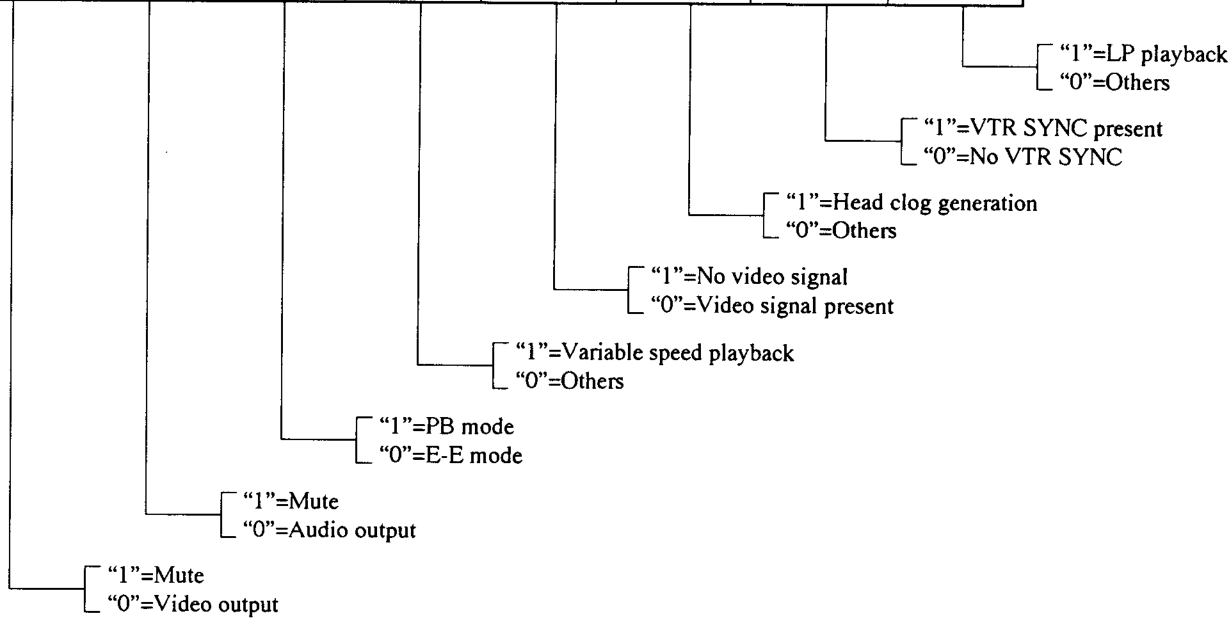
Mode Switch Position	**Adjusting Remote Control Unit Display**
READY (STOP)	2*
GL	4*
USE	6*
EJECT	8*
RP (REC, PB, FF, REW, CUE, REVIEW, PAUSE)	A*
LS	C*
BL	D*

*: 0 to F

9. Mechanism Control (VS-98 board IC153) Condition Check

Page 1	Address 3D

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
VIDEO MUTE	AUDIO MUTE	VA PB MODE	JOG	PB CLOG	REC CLOG	SYNC DET	PB SP/LP DET



"1"=LP playback
"0"=Others

"1"=VTR SYNC present
"0"=No VTR SYNC

"1"=Head clog generation
"0"=Others

"1"=No video signal
"0"=Video signal present

"1"=Variable speed playback
"0"=Others

"1"=PB mode
"0"=E-E mode

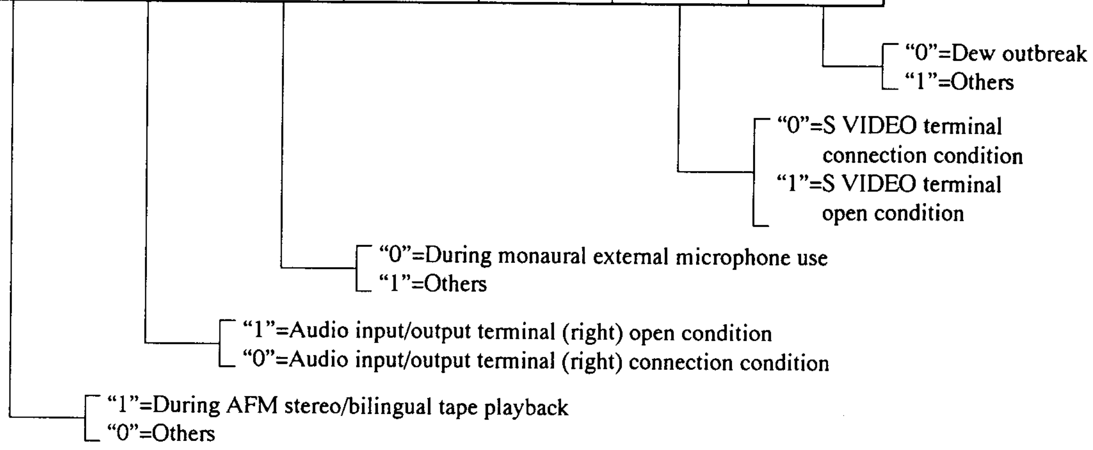
"1"=Mute
"0"=Audio output

"1"=Mute
"0"=Video output

10. Mechanism Control Input Check

Page 1	Address 42

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
VIDEO MUTE	AUDIO MUTE	VA PB MODE	JOG	PB CLOG	REC CLOG	SYNC DET	PB SP/LP DET



"0"=Dew outbreak
"1"=Others

"0"=S VIDEO terminal connection condition
"1"=S VIDEO terminal open condition

"0"=During monaural external microphone use
"1"=Others

"1"=Audio input/output terminal (right) open condition
"0"=Audio input/output terminal (right) connection condition

"1"=During AFM stereo/bilingual tape playback
"0"=Others

11. Mechanism Control A/D Port Input Voltage Check

Page 4	Address 14

Checking method:

1) Set data 02 to page: 4, address: 0E.
   (A/D conversion processing active)
2) Set the following data to page: 4, address: 13, and select the A/D port to be displayed.

Data	Operation
00	Pin (62): AN0 (T REEL FG)
01	Pin (61): AN1 (S REEL FG)
02	Pin (60): AN2 (ATF ERROR)
03	Pin (59): AN3 (BATT SENS)
04	Pin (58): AN4 ($\overline{\text{DEW}}$)

3) Check the data of page: 4, address: 14.

Adjusting Remote Control Unit Display Data	A/D Port Input Voltage
FF to 00	Approx. 5 Vdc to 0 Vdc

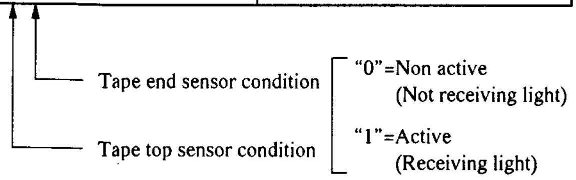
12. Tape Top/End Sensor Condition

Page 4	Address 0A

Checking method:

1) Set data 10 to page: 4, address: 0E.
   (Tape top/end sensor condition sampling processing active)
2) Check the data of page: 4, address: 0A.

Adjusting Remote Control Unit Display Data	Tape Top/End Sensor Condition
00	Tape present (Middle of tape)
01	Tape top
10	Tape end
11	No tape



13. Individual Operations of the Drum, Capstan, and Loading Motor

Page 4	Address 11

1) Adjust the mechanical section to the loading completion condition.
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Set data: 01 to page: 4, address: 0E.
   (Control permission from the adjusting remote control unit of the motor)
4) By setting the data in the following table to page: 4, address: 11, the corresponding motors can be operated individually.

Data	Operation
00	Normal
02	Drum forward rotation
04	Drum reverse rotation
06	Capstan forward rotation
08	Capstan reverse rotation
0A	Loading motor forward rotation
0C	Loading motor reverse rotation
01	All motors stop
03	
05	
07	
09	
0B	
0D	
0F	

6) After checking the operations, turn off the main power (6.3 Vdc).

14. Key Matrix Input Check

Page 1	Address 68 to 6F

The corresponding bit when the switch is on is "1".

	Bit 7	Bit 6 (K IN 6)	Bit 5 (K IN 5)	Bit 4 (K IN 4)	Bit 3 (K IN 3)	Bit 2 (K IN 2)	Bit 1 (K IN 1)	Bit 0 (K IN 0)
Address 68 (K OUT 0)			Video power supply (FK-51 S119)	Data screen (FK-51 S115)	Pause (FK-51 S112)	Record (FK-51 S109)	Eject (FK-51 S103)	Hi-Fi sound (1) (CF-29 S201)
Address 69 (K OUT 1)		Steady shot (CF-29 S216)	Camera power supply (FK-51 S118, 119)	Fast forward (FK-51 S116)	Playback (FK-51 S113)	Rewind (FK-51 S110)	Stop (FK-51 S104)	Hi-Fi sound (2) (CF-29 S201)
Address 6A (K OUT 2)			Zoom microphone (MA-109 S901)	Zero memory (FK-51 S117)	Edit search (+) (FK-51 S114)	Edit search (–) (FK-51 S111)	Counter reset (FK-51 S105)	Edit (CF-29 S202)
Address 6B (K OUT 3)		Auto-lock (CF-29 S217)		Shutter speed (CF-29 S212)	Time (CF-29 S209)	Date (CF-29 S207)	White balance (CF-29 S204)	Hi8 (CF-29 S203)
Address 6C (K OUT 4)		Exposure (+) (CF-29 S218)		Focus (CF-29 S213)	Color/mode (CF-29 S210)	Memory (CF-29 S208)	Superimpose on/off (CF-29 S205)	Input/output (Pin jack)
Address 6D (K OUT 5)		Exposure (–) (CF-29 S219)	Area (CF-29 S215)	Summer time (CF-29 S214)	Exposure (CF-29 S211)	Fader (MA-109 S902)	Start/stop (CF-29 S206)	

15. Hi8 Switch, Edit Switch Check

Page 1	Address 0A

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
		Hi8	Edit				

Bit4 (Edit):
"1"=Edit ON
"0"=Edit OFF

Bit5 (Hi8):
"1"=Off
"0"=Auto

16. Input/Output Switch, Hi-Fi Switch Check

Page 1	Address 0B

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
		Hi-Fi		Input/output			

Bit3 (Input/output):
"1"=Input
"0"=Output

Switch Position	Bit5	Bit4
1	0	1
2	1	0
Stereo	0	0

17. Wireless Remote Control Unit Reception Content Check

Page 1	Address 1E

Wireless remote control unit key pressed	Data
None	FF
TELE	9A
WIDE	9B
Start/stop	99
Rewind	1B
Fast forward	1C
Stop	18
Playback	1A
Data screen	5A
Pause	19

18. White Balance Mode, Focus Mode Display/Switchover

Page 1	Address 9A

The mode can be switched when the data of page 1, address A3 is set to 04.

Data	White Balance Mode
*1	INDOOR
*2	OUTDOOR
*3	HOLD
*6	AUTO

Data	Focus Mode
0*	Manual
1*	Auto

* 0 to F

19. Electronic Shutter Speed Display/Switchover

Page 1	Address 9B

The speed can be switched when the auto-lock switch is turned OFF.

Data	Shutter Speed
00	1/50
01	1/100
02	1/250
03	1/1000
04	1/2000
05	1/4000
06	1/10000

20. LCD, LED Check, Etc.

Page 1	Address A3

Data	Mode
00	Normal
01	Key input prohibited
02	All segments of LCD, LED light up
04	Camera function renewal prohibited

21. Time Code Check

Page 1	Address BB to BE

Data	Adjusting remote control unit display data contents	
BB	Hour	BCD code ("FF" when the time code is not recorded/played back)
BC	Minutes	
BD	Seconds	
BE	Frame No.	

22. Data Code Check

Page 1	Address D0 to D5

Data	Adjusting remote control unit display data contents	
D0	Second	BCD code
D1	Minute	
D2	Hour	
D3	Day	
D4	Month	
D5	Year	

23. Page D Address List

Note 1: The adjustment data initial value is data input before performing video section adjustment (Page D) when the Page D data has been lost due to some reason.

Note 2: The data listed in the adjusting data memo column are fixed.
After adjusting, check that these data have been rewritten correctly.
*1 No mark : AEP, UK model
[ ] : E, Australian, Tourist model

Address	Name	Function ( ) indicates the adjusting voltage output terminal.	Adjusting Data	
			Initial Value	Memo Column
00	Category code	World clock standard area	00	00
01	Test mode	Test mode	00	00
02	Destination flag	Destination flag	82[A3]*1	82[A3]*1
03	BATT END	Battery end adjustment	8E	
04	SW POSITION (LOW)	SW POSITION adjustment (Top)	00	
05	SW POSITION (HIGH)	SW POSITION adjustment (Bottom)	80	
06	EMERGENCY code (FIRST)	Error codes and modes are recorded. Rewrite the data of these addresses to 00 after completing repairs/adjustments.	00	00
07	EMERGENCY code (LAST)		00	00
08	EMERGENCY mode (FIRST)		00	00
09	EMERGENCY mode (LAST)		00	00
0A	SR DATA (MP NORMAL SP)	CXA1207 serial data	67	67
0B	SR DATA (MP NORMAL LP)	CXA1207 serial data	5F	5F
0C	SR DATA (ME HI8 SP)	CXA1207 serial data	69	69
0D	SR DATA (ME HI8 LP)	CXA1207 serial data	6F	6F
0E	SR DATA (ME NORMAL SP)	CXA1207 serial data	68	68
0F	SR DATA (ME NORMAL LP)	CXA1207 serial data	5C	5C
10	SR DATA (MP HI8 SP)	CXA1207 serial data	63	63
11	SR DATA (MP HI8 LP)	CXA1207 serial data	5F	5F
12	SR DATA (EDIT ON NORMAL)	CXA1207 serial data	5C	5C
13	SR DATA (EDIT ON HI8)	CXA1207 serial data	65	65
14	CAM TITLE BLU R–Y	Camera titler color adjustment (Blue)	7D	
15	CAM TITLE BLU B–Y	Camera titler color adjustment (Blue)	BA	
16	CAM TITLE GRN R–Y	Camera titler color adjustment (Green)	62	
17	CAM TITLE GRN B–Y	Camera titler color adjustment (Green)	46	
18	CAM TITLE CYN R–Y	Camera titler color adjustment (Cyan)	60	
19	CAM TITLE CYN B–Y	Camera titler color adjustment (Cyan)	86	
1A	CAM TITLE RED R–Y	Camera titler color adjustment (Red)	A0	
1B	CAM TITLE RED B–Y	Camera titler color adjustment (Red)	7A	
1C	CAM TITLE VIO R–Y	Camera titler color adjustment (Violet)	9E	
1D	CAM TITLE VIO B–Y	Camera titler color adjustment (Violet)	BA	
1E	CAM TITLE YEL R–Y	Camera titler color adjustment (Yellow)	82	
1F	CAM TITLE YEL B–Y	Camera titler color adjustment (Yellow)	45	
20		DDS display starting year, EJECT permission etc.	20	20
21		CAM P ON, VTR P ON etc.	00	00
22 to 2F		Not used.	FF	FF
30	REC C 1A (ME)	ME 1Ach REC C level adjustment (IC305 ⑥)	B8	
31	REC C 1A (MP)	MP 1Ach REC C level adjustment (IC305 ⑥)	B8	
32	REC C 1B (ME)	ME 1Bch REC C level adjustment (IC305 ⑦)	B8	
33	REC C 1B (MP)	MP 1Bch REC C level adjustment (IC305 ⑦)	B8	
34	REC C 2A (ME)	ME 2Ach REC C level adjustment (IC305 ⑧)	B8	

Table 9-4 (1).

Address	Name	Function ( ) indicates the adjusting voltage output terminal.	Adjusting Data	
			Initial Value	Memo Column
35	REC C 2A (MP)	MP 2Ach REC C level adjustment (IC305 ⑧)	B8	
36	REC C 2B (ME)	ME 2Bch REC C level adjustment (IC305 ⑨)	B8	
37	REC C 2B (MP)	MP 2Bch REC C level adjustment (IC305 ⑨)	B8	
38	CAP FG OFFSET	Capstan FG bias adjustment (IC305 ⑬)	80	
39		Not used.	FF	FF
3A		Not used.	FF	FF
3B	MT Q		80	80
3C	MT F0 (E)	Hi8 middle tune f0 frequency (IC306 ④)	60	60
3D	MT F0 (L)	Normal middle tune f0 frequency (IC306 ④)	50	50
3E	MT 2A (E)	Hi8 2Ach frequency characteristics adjustment (IC306 ⑲)	8A	
3F	MT 2A (L)	Normal 2Ach frequency characteristics adjustment (IC306 ⑲)	8A	
40	MT 2B (E)	Hi8 2Bch frequency characteristics adjustment (IC306 ③)	89	
41	MT 2B (L)	Normal 2Bch frequency characteristics adjustment (IC306 ③)	89	
42	MT 1A (E)	Hi8 1Ach frequency characteristics adjustment (IC306 ⑱)	80	
43	MT 1A (L)	Normal 1Ach frequency characteristics adjustment (IC306 ⑱)	80	
44	MT 1B (E)	Hi8 1Bch frequency characteristics adjustment (IC306 ②)	81	
45	MT 1B (L)	Normal 1Bch frequency characteristics adjustment (IC306 ②)	81	
46	REC C RF (REC)	REC C RF level adjustment (IC305 ③)	9E	
47	REC C RF (PB)	PB mode REC C RF level (IC305 ③)	00	00
48	RF CONT (ME)	ME RF CONT (IC305 ⑤)	4B	4B
49	RF CONT (MP)	MP RF CONT (IC305 ⑤)	4B	4B
4A	SYNC AGC	SYNC AGC adjustment (IC304 ⑱)	6D	
4B		Not used.	FF	FF
4C	C COMB	Chroma comb filter adjustment (IC304 ⑲)	90	
4D	IR	IR adjustment (IC304 ④)	A2	
4E	CAR.-E	Hi8 Y-FM carrier frequency adjustment (IC304 ⑤)	A7	
4F	CAR.-L	Normal Y-FM carrier frequency adjustment (IC304 ⑤)	A4	
50	DEV.-E	Hi8 Y-FM deviation adjustment (IC304 ⑥)	A1	
51	DEV.-L	Normal Y-FM deviation adjustment (IC304 ⑥)	95	
52	REC Y CONT (ME E)	Hi8 ME REC Y level adjustment (IC305 ⑫)	8F	
53	REC Y CONT (MP E)	Hi8 MP REC Y level adjustment (IC305 ⑫)	8F	
54	REC Y CONT (ME L)	Normal ME REC Y level adjustment (IC305 ⑫)	88	
55	REC Y CONT (MP L)	Normal MP REC Y level adjustment (IC305 ⑫)	8A	
56	REC Y CONT (PB)	PB mode REC Y level (IC305 ⑫)	90	90
57	PB Y (EE)	EE mode PB Y level (IC304 ⑨)	00	00
58	PB Y (E)	Hi8 PB Y level adjustment (IC304 ⑨)	A0	
59	PB Y (L)	Normal PB Y level adjustment (IC304 ⑨)	A0	
5A	EMPH (EE)	EE emphasis input level adjustment (IC304 ⑫)	92	
5B	EMPH (PB)	PB LINE OUT level adjustment (IC304 ⑫)	9A	
5C	REC L CONT (ME E SP)	Hi8 ME SP REC L CONT adjustment (IC305 ②)	DA	

Table 9-4 (2).

Address	Name	Function ( ) indicates the adjusting voltage output terminal.	Adjusting Data	
			Initial Value	Memo Column
5D	REC L CONT (MP E SP)	Hi8 MP SP REC L CONT adjustment (IC305 ②)	A5	
5E	REC L CONT (ME L SP)	Normal ME SP REC L CONT adjustment (IC305 ②)	D0	
5F	REC L CONT (MP L SP)	Normal MP SP REC L CONT adjustment (IC305 ②)	B9	
60	REC L CONT (ME E LP)	Hi8 ME LP REC L CONT (IC305 ②)	DA	
61	REC L CONT (MP E LP)	Hi8 MP LP REC L CONT (IC305 ②)	A5	
62	REC L CONT (ME L LP)	Normal ME LP REC L CONT (IC305 ②)	D0	
63	REC L CONT (MP L LP)	Normal MP LP REC L CONT (IC305 ②)	B9	
64	PILOT CONT (ME)	ME PILOT CONT (IC305 ④)	90	90
65	PILOT CONT (MP)	MP PILOT CONT (IC305 ④)	80	80
66	YD ADJ	YD adjustment (IC304 ②)	84	
67	PAL JOG	PAL JOG adjustment (IC304 ③)	6D	6D
68	D. CLIP (ME E SP)	Hi8 ME SP DARK CLIP (IC304 ⑦)	88	88
69	D. CLIP (MP E SP)	Hi8 MP SP DARK CLIP (IC304 ⑦)	8B	8B
6A	D. CLIP (ME L SP)	Normal ME SP DARK CLIP (IC304 ⑦)	70	70
6B	D. CLIP (MP L SP)	Normal MP SP DARK CLIP (IC304 ⑦)	75	75
6C	D. CLIP (ME E LP)	Hi8 ME LP DARK CLIP (IC304 ⑦)	88	88
6D	D. CLIP (MP E LP)	Hi8 MP LP DARK CLIP (IC304 ⑦)	8B	8B
6E	D. CLIP (ME L LP)	Normal ME LP DARK CLIP (IC304 ⑦)	70	70
6F	D. CLIP (MP L LP)	Normal MP LP DARK CLIP (IC304 ⑦)	75	75
70	W. CLIP (ME E SP)	Hi8 ME SP WHITE CLIP (IC304 ⑧)	65	65
71	W. CLIP (MP E SP)	Hi8 MP SP WHITE CLIP (IC304 ⑧)	62	62
72	W. CLIP (ME L SP)	Normal ME SP WHITE CLIP (IC304 ⑧)	A8	A8
73	W. CLIP (MP L SP)	Normal MP SP WHITE CLIP (IC304 ⑧)	AB	AB
74	W. CLIP (ME E LP)	Hi8 ME LP WHITE CLIP (IC304 ⑧)	65	65
75	W. CLIP (MP E LP)	Hi8 MP LP WHITE CLIP (IC304 ⑧)	62	62
76	W. CLIP (ME L LP)	Normal ME LP WHITE CLIP (IC304 ⑧)	A8	A8
77	W. CLIP (MP L LP)	Normal MP LP WHITE CLIP (IC304 ⑧)	AB	AB
78	REC/PB MX (REC)	REC matrix adjustment (IC306 ⑬)	AF	
79	REC/PB MX (PB)	PB matrix adjustment (IC306 ⑬)	AF	
7A	1.5 IR	1.5 MHz IR adjustment (IC306 ⑧)	AF	
7B	1.5 DEV	1.5 MHz deviation adjustment (IC306 ⑨)	AF	
7C	1.7 IR	1.7 MHz IR adjustment (IC306 ⑥)	AF	
7D	1.7 DEV	1.7 MHz deviation adjustment (IC306 ⑦)	AF	
7E	AUDIO FADER	Audio fader (IC304 ⑬)	00	00
7F	INDEX VCO	PB VCO oscillation frequency adjustment (IC306 ⑫)	A8	
80	ZOOM CONT B	Zoom microphone control B (IC305 ⑱)	00	00
81	ZOOM CONT A	Zoom microphone control A (IC305 ⑲)	00	00
82 to 8F		Not used.	FF	FF
90	ZOOM CONT A (ZOOM POS 0)	Zoom microphone control A (IC305 ⑲) } WIDE	6B	6B
91	ZOOM CONT B (ZOOM POS 0)	Zoom microphone control B (IC305 ⑱) ↑	00	00

Table 9-4 (3).

Address	Name	Function ( ) indicates the adjusting voltage output terminal.	Adjusting Data	
			Initial Value	Memo Column
92	ZOOM CONT A (ZOOM POS 1)	Zoom microphone control A (IC305 ⑲)	6B	6B
93	ZOOM CONT B (ZOOM POS 1)	Zoom microphone control B (IC305 ⑱)	04	04
94	ZOOM CONT A (ZOOM POS 2)	Zoom microphone control A (IC305 ⑲)	65	65
95	ZOOM CONT B (ZOOM POS 2)	Zoom microphone control B (IC305 ⑱)	09	09
96	ZOOM CONT A (ZOOM POS 3)	Zoom microphone control A (IC305 ⑲)	60	60
97	ZOOM CONT B (ZOOM POS 3)	Zoom microphone control B (IC305 ⑱)	0B	0B
98	ZOOM CONT A (ZOOM POS 4)	Zoom microphone control A (IC305 ⑲)	5B	5B
99	ZOOM CONT B (ZOOM POS 4)	Zoom microphone control B (IC305 ⑱)	0D	0D
9A	ZOOM CONT A (ZOOM POS 5)	Zoom microphone control A (IC305 ⑲)	56	56
9B	ZOOM CONT B (ZOOM POS 5)	Zoom microphone control B (IC305 ⑱)	16	16
9C	ZOOM CONT A (ZOOM POS 6)	Zoom microphone control A (IC305 ⑲)	50	50
9D	ZOOM CONT B (ZOOM POS 6)	Zoom microphone control B (IC305 ⑱)	21	21
9E	ZOOM CONT A (ZOOM POS 7)	Zoom microphone control A (IC305 ⑲)	4A	4A
9F	ZOOM CONT B (ZOOM POS 7)	Zoom microphone control B (IC305 ⑱)	30	30
A0	ZOOM CONT A (ZOOM POS 8)	Zoom microphone control A (IC305 ⑲)	40	40
A1	ZOOM CONT B (ZOOM POS 8)	Zoom microphone control B (IC305 ⑱)	3C	3C
A2	ZOOM CONT A (ZOOM POS 9)	Zoom microphone control A (IC305 ⑲)	31	31
A3	ZOOM CONT B (ZOOM POS 9)	Zoom microphone control B (IC305 ⑱)	45	45
A4	ZOOM CONT A (ZOOM POS A)	Zoom microphone control A (IC305 ⑲)	25	25
A5	ZOOM CONT B (ZOOM POS A)	Zoom microphone control B (IC305 ⑱)	51	51
A6	ZOOM CONT A (ZOOM POS B)	Zoom microphone control A (IC305 ⑲)	15	15
A7	ZOOM CONT B (ZOOM POS B)	Zoom microphone control B (IC305 ⑱)	56	56
A8	ZOOM CONT A (ZOOM POS C)	Zoom microphone control A (IC305 ⑲)	0D	0D
A9	ZOOM CONT B (ZOOM POS C)	Zoom microphone control B (IC305 ⑱)	60	60
AA	ZOOM CONT A (ZOOM POS D)	Zoom microphone control A (IC305 ⑲)	09	09
AB	ZOOM CONT B (ZOOM POS D)	Zoom microphone control B (IC305 ⑱)	61	61
AC	ZOOM CONT A (ZOOM POS E)	Zoom microphone control A (IC305 ⑲)	04	04
AD	ZOOM CONT B (ZOOM POS E)	Zoom microphone control B (IC305 ⑱)	6B	6B
AE	ZOOM CONT A (ZOOM POS F)	Zoom microphone control A (IC305 ⑲) } TELE	00	00
AF	ZOOM CONT B (ZOOM POS F)	Zoom microphone control B (IC305 ⑱)	6B	6B

Table 9-4 (4).

9-2. POWER SYSTEM ADJUSTMENTS

1. Oscillator Frequency Adjustment (DD-52 board)

Mode	Camera record
Subject	Arbitrary
Measurement Point	Q238 collector
Measuring Instrument	Frequency counter
Adjusting Element	RV231
Specified Value	475 ± 5 kHz

Adjusting method:

1) Adjust RV231 so that the oscillator frequency becomes the specified value.

2. Voltage Adjustment (DD-52 board)

Mode	Camera record
Subject	Arbitrary
Measurement Point	Pin ㉖ of CN203 (VID 5V)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV232
Specified Value	4.92 ± 0.01 Vdc

Adjusting method:

1) Adjust RV232 so that the VID 5V voltage becomes the specified value.

3. Power Voltage Check (DD-52 board)

Mode	Camera record
Subject	Arbitrary
Measuring Instrument	Digital voltmeter
EVR 5V check	
Measurement Point	Pins ㉑ and ㉔ of CN203
Specified Value	4.97 ± 0.15 Vdc
SS5V check	
Measurement Point	Pins ⑮ and ⑱ of CN203
Specified Value	4.87 ± 0.15 Vdc
M5V (2) check	
Measurement Point	Pins ⑩, ⑪ and ⑫ of CN203
Specified Value	5.03 ± 0.15 Vdc
VID 5V check	
Measurement Point	Pins ㉕ and ㉖ of CN203
Specified Value	4.92 ± 0.02 Vdc
AU 5V check	
Measurement Point	Pins ⑰ and ⑳ of CN203
Specified Value	4.89 ± 0.15 Vdc
DIG 5V check	
Measurement Point	Pins ⑨ and ⑩ of CN202
Specified Value	$4.85^{+1.15}_{-0.05}$ Vdc
CAM 5V check	
Measurement Point	Pins ①, ③ and ⑥ of CN202
Specified Value	4.90 ± 0.05 Vdc
CAM 15V check	
Measurement Point	Pin ② of CN202
Specified Value	15.00 ± 0.15 Vdc
CAM –9V check	
Measurement Point	Pin ④ of CN202
Specified Value	–8.40 ± 0.40 Vdc
M5V check	
Measurement Point	Pins ⑭ and ⑮ of CN202
Specified Value	4.98 ± 0.15 Vdc

9-3. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Page D Initial Value Input

If the page D data has been erased due to some cause, input the page D initial value before performing adjustments. For details on the initial value, refer to "Page D address list" in "9-1-10. Service Mode".

Mode	E-E
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	00 to AF

Input method:

1) Release the write protect.
   Page: 1, address: 00, data: 01
2) Select page D, and input the initial value to each address. (After setting the data (initial value), be sure to press the PAUSE button of the adjusting remote control unit before changing the address.)

2. Battery End Adjustment

Mode	E-E
Signal	Arbitrary
Measurement Point	LCD display of the adjusting remote control unit
Measuring Instrument	
Adjustment Page	D
Specified Value	03 (BATT END)

Connection:

1) Connect the regulated power supply and the digita voltmeter as shown in Fig. 9-6.

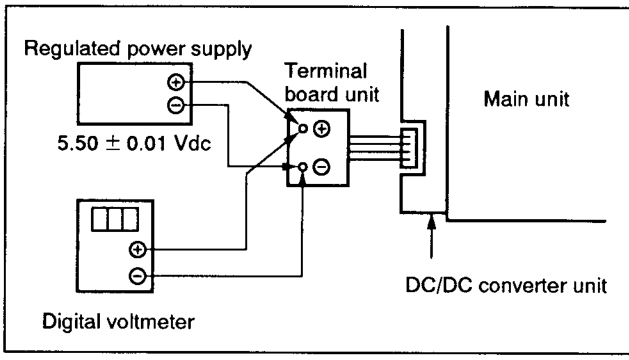


Fig. 9-6.

Adjusting method:

1) Adjust the regulated power supply output voltage so that th digital voltmeter display is 6.3 ± 0.1 Vdc.
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Set data: 01 to page: D, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Test mode 1 setting)
4) Decrease the voltage so that the digital voltmeter display is 5.50 ± 0.01 Vdc.
5) Select page: 4, address: 10, read the adjusting remote control unit display data, and take it as D_{03}.
6) Set data D_{03} to page: D, address: 03, and press the PAUSE button of the adjusting remote control unit.
7) Set data: 00 to page: D, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Test mode 1 release)
8) Turn off the power supply.
9) Perform "Battery Down Check".

3. Battery Down Check

Mode	Camera record
Subject	Arbitrary

Connection

1) Connect the regulated power supply and the digital voltmeter as shown in Fig. 9-6.

Checking method:
Remove the adjusting remote control unit, and perform the following check. If the check is not satisfied, perform from the beginning again.

1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes 6.3 ± 0.1 Vdc.
2) Set to the camera recording mode.
3) Decrease the output voltage of the regulated power supply so that the digital voltmeter display becomes 5.65 ± 0.01 Vdc.
4) Check that the 🔋 mark on the EVF (viewfinder) display is not lighted up. (TALLY lamp lights up).
5) Decrease the the output voltage of the regulated power supply so that the digital voltmeter display becomes 5.53 ± 0.01 Vdc.
6) Check that the 🔋 mark and the TALLY lamp on the EVF display on the EVF display blinks every second.
7) Decrease the the output voltage of the regulated power supply so that the digital voltmeter display becomes 5.47 ± 0.01 Vdc.
8) Check that the 🔋 mark and the TALLY lamp on the EVF display are blinking faster, the VTR stops and the power supply turns off.

9-4. SERVO SYSTEM ADJUSTMENTS

1. Switching Position Adjustment (FP-484 board)

Mode	Playback
Signal	Alignment tape: For tracking adjustment (WR5-1CP)
Measurement Point	CH1: Pin ⑨ of CN002 (RF SWP) CH2: Pin ⑫ of CN002 (PB RF CH2)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	04 (SW POSITION) (LOW) 05 (SW POSITION) (HIGH)
Specified Value	$t_1=0 \pm 5$ μsec

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Set data: 80 to page: D, address: 05.
3) Change the data of page: D, address: 05 (For coarse adjustments) and address: 04 (For fine adjustments), and adjust so that the switching position (t_1) becomes the specified value.
   Note: Be sure to press the PAUSE button of the adjusting remote control unit before changing the address. If not, the new data will not be written in the memory.
4) Press the PAUSE button of the adjusting remote control unit.

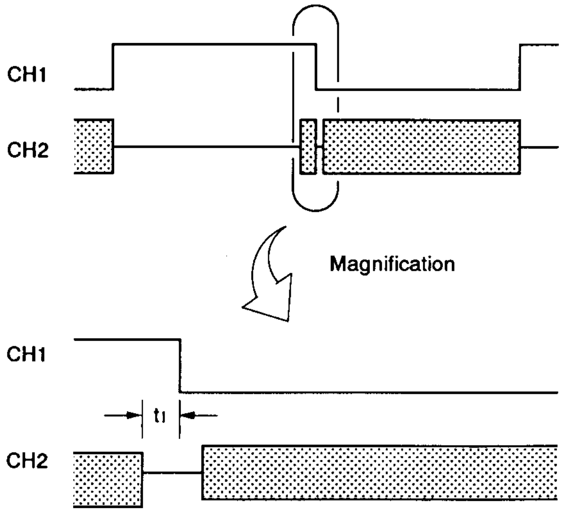


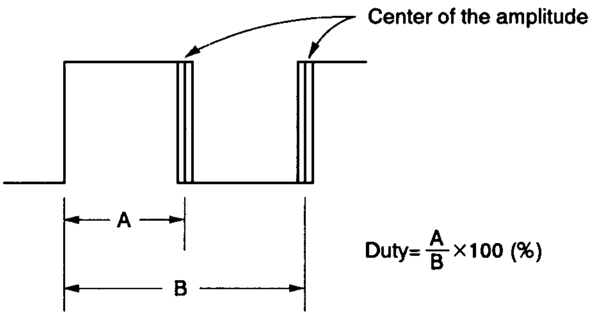
Fig. 9-7.

2. CAP FG Duty Adjustment (FP-484 board)

Mode	Record (SP)
Signal	Color bar
Measurement Point	Pin ④ of CN002 (CAP FG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	38 (CAP FG BIAS)
Specified Value	Duty=50 ± 1%

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Set data: 80 to page: D, address: 38.
3) Change the data of page: D, address: 38, and adjust the duty of the CFG waveform to the specified value.
4) Press the PAUSE button of the adjusting remote control unit.



$\text{Duty}=\frac{A}{B}\times 100\ (\%)$

Fig. 9-8.

9-5. VIDEO ADJUSTMENTS

The adjustments of the video system must be performe according to the following adjustment procedure.

The color video signal supplied from the pattern generator is use as the video input signal for adjusting the video system i recording mode. Check that the sync signal and the color bur signal satisfy the specification specified during the adjustmer set-up shown in Figs. 9-3. and 9-4.

Use a ME tape unless specified otherwise. Check that the Hi switch is at “Auto”.

[Adjusting procedure]

1) Playback frequency characteristics adjustment
2) Flying erase check
3) VXO oscillation frequency check
4) SYNC AGC level adjustment
5) IR adjustment
6) Chroma comb filter adjustment
7) Emphasis input level adjustment
8) PB Y level adjustment
9) PB LINE OUT level adjustment
10) Normal mode Y FM carrier frequency adjustment
11) Normal mode Y FM deviation adjustment
12) Hi8 mode Y FM carrier frequency adjustment
13) Hi8 mode Y FM deviation adjustment
14) Chroma emphasis adjustment
15) REC C RF level adjustment
16) REC Y level adjustment
17) REC L CONT adjustment
18) REC C preset adjustment
19) REC ATF level check
20) Chroma flicker adjustment
21) REC AFM level check
22) YD adjustment

1. Playback Frequency Characteristics Adjustment (FP-484 board)

Mode	Playback
Signal	Alignment tape: For Hi8 mode frequency characteristics adjustment (WR5-7CE)
Measurement Point	Refer to Fig. 9-9.
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	42 (MT 1A (E)), 44 (MT 1B (E)), 3E (MT 2A (E)), 40 (MT 2B (E)), 43 (MT 1A (L)), 45 (MT 1B (L)), 3F (MT 2A (L)), 41 (MT 2B (L))
Specified Value	4.5 MHz level: 7.0 MHz level= 4: (3.0 ± 0.2)

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of each address of page D, and adjust the level ratio of 4.5 MHz and 7.0 MHz of each PB RF output waveform of 1a, 1b, 2a, 2b to the specified value.
   Note: After each address adjustment, be sure to press the PAUSE button of the adjusting remote control unit and memorize the data.
3) Set data to address: 43, 45, 3F, 41 of Page: D as shown in the following table.
   (Be sure to press the PAUSE button of the adjusting remote control unit after setting each data.)

Address	Data
43	Same data as address: 42
45	Same data as address: 44
3F	Same data as address: 3E
41	Same data as address: 40

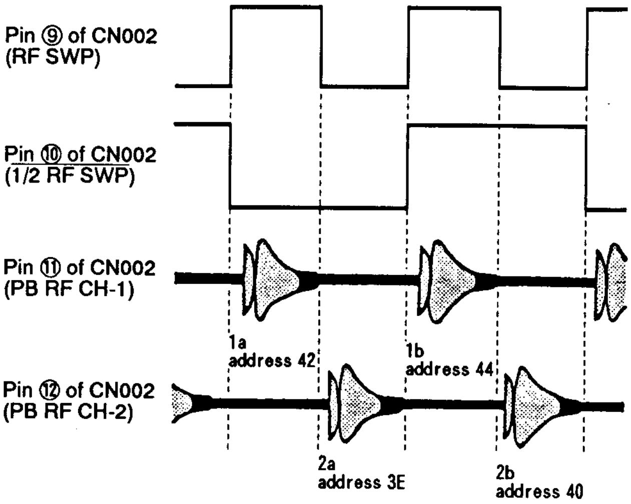

Pin ⑨ of CN002 (RF SWP)
Pin ⑩ of CN002 (1/2 RF SWP)
Pin ⑪ of CN002 (PB RF CH-1)
Pin ⑫ of CN002 (PB RF CH-2)
1a address 42
1b address 44
2a address 3E
2b address 40

Fig. 9-9.

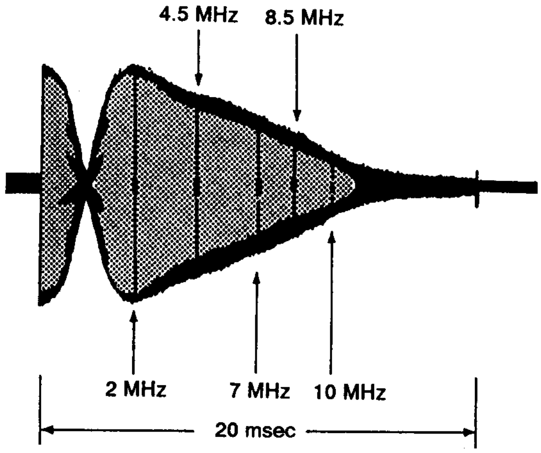

4.5 MHz
8.5 MHz
2 MHz
7 MHz
10 MHz
20 msec

Fig. 9-10.

2. Flying Erase Check (VS-98 board)

Mode	Record
Signal	Arbitrary
Measurement Point	Pin ⑮ of CN001 (FE (X)) (JL001)
Measuring Instrument	Oscilloscope and frequency counter
Specified Value	Frequency: Above 7.5 MHz Voltage: Above 6.0 Vp-p

Note: Use a ME type tape.

Checking method:

1) Check that the oscillation frequency is above 7.5 MHz and that the oscillation voltage is above 6.0 Vp-p.

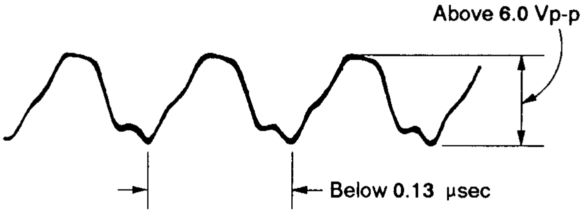


Fig. 9-11.

3. VXO Oscillation Frequency Check (VS-98 board)

Mode	Record
Signal	Color bar
Measurement Point	Pin ⑫ of IC501
Measuring Instrument	Frequency counter
Specified Value	4433618 ± 100 Hz

Note: Connect the frequency counter via a high impedance (approximately 10 MΩ) and low capacity (below 10 pF) buffer.

Adjusting method:

1) Check that the oscillation frequency of pin ⑫ of IC501 is 4433618 ± 100 Hz.

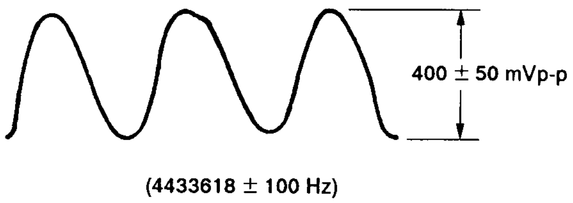


Fig. 9-12.

4. SYNC AGC Level Adjustment (VS-98 board)

Mode	Record
Signal	Color bar (S VIDEO)
Measurement Point	Pin ㉘ of IC401 (EE PB Y) (JL303)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4A (SYNC AGC)
Specified Value	A=0.5 ± 0.01V

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 4A, and adjust so th the Y signal level (A) becomes the specified value.
3) Press the PAUSE button of the adjusting remote contr unit.

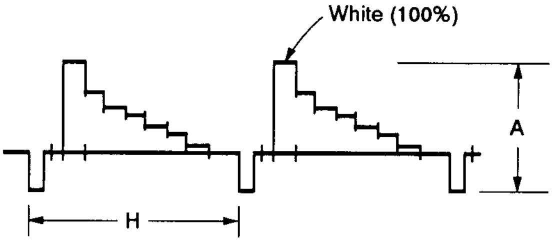


Fig. 9-13.

5. IR Adjustment (VS-98 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ⑦ of IC401 (Y COMB OUT) (JL438)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4D (SR IR)
Specified Value	Residual chroma component (A) is minimum (below 50 mVp-p)

Connection

1) Connect pin ⑭ of IC401 (or pin ② of IC402) to pin (51) of IC401 with a jumper wire.

Adjusting method:

1) Check that the input is "VIDEO".
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Change the data of page: D, address: 4D, and adjust so that the residual chroma component (A) becomes minimum.
4) Press the PAUSE button of the adjusting remote control unit.

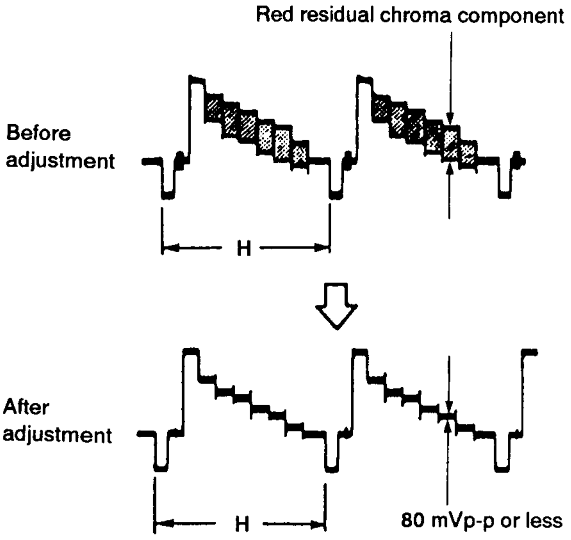

Red residual chroma component
Before adjustment
H
After adjustment
H
80 mVp-p or less

Fig. 9-14.

6. Chroma Comb Filter Adjustment (VS-98 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ⑪ of IC401 (C+CD) (JL437)
Adjusting Element	Oscilloscope
Measuring Instrument	RV551 (Phase)
Adjustment Page	D
Adjustment Address	4C (C COMB)
Specified Value	Residual chroma component (A) is minimum.

Adjusting method:

1) Check that the input is "VIDEO".
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Change the data of page: D, address: 4C, and adjust the residual chroma component to minimum.
4) Adjust RV551 so that the residual chroma component (A) becomes minimum.
5) Repeat 3) and 4) until the specified value is satisfied.
6) Press the PAUSE button of the adjusting remote control unit.

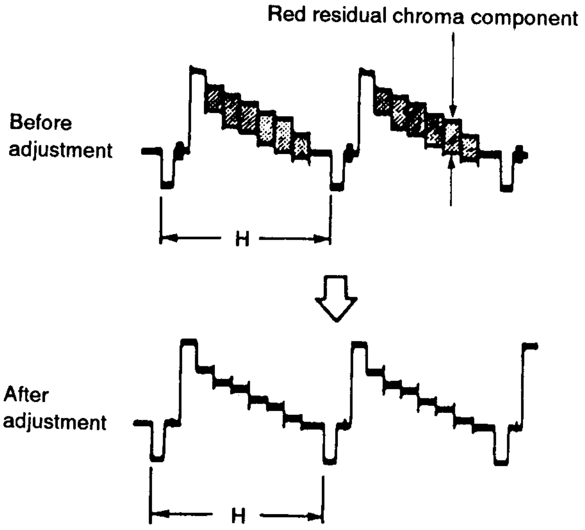

Red residual chroma component
Before adjustment
H
After adjustment
H

Fig. 9-15.

7. Emphasis Input Level Adjustment (VS-98 board)

Mode	Record
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑤ of IC403 (or Pin ③ of IC401) (JL447)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5A (EMP LEVEL)
Specified Value	A=0.50 ± 0.025V

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 5A, and adjust so that the Y signal level (A) becomes the specified value.
3) Press the PAUSE button of the adjusting remote control unit.

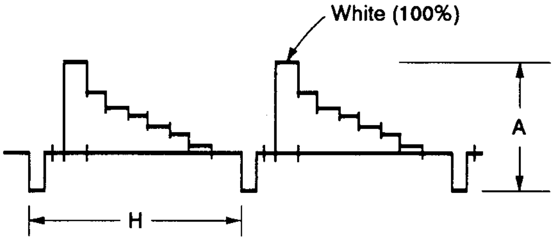


Fig. 9-16.

8. PB Y Level Adjustment (VS-98 board)

Mode	Playback
Signal	Alignment tape: For checking operations Color bar section • Normal mode WR5-5CSP • Hi8 mode WR5-8CSE
Measurement Point	Pin ⑮ of IC401 (JL435)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	• Normal mode 59 (PB YL) • Hi8 mode 58 (PB YE)
Specified Value	A=0.50 ± 0.025V

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Playback the color bar section of the normal mode alignment tape (WR5-5CSP).
3) Change the data of page: D, address: 59, and adjust so that the Y signal level (A) becomes the specified value.
4) Press the PAUSE button of the adjusting remote control unit.
5) Playback the color bar section of the Hi8 mode alignment tape (WR5-8CSE).
6) Change the data of page: D, address: 58, and adjust so that the Y signal level (A) becomes the specified value.
7) Press the PAUSE button of the adjusting remote control unit.

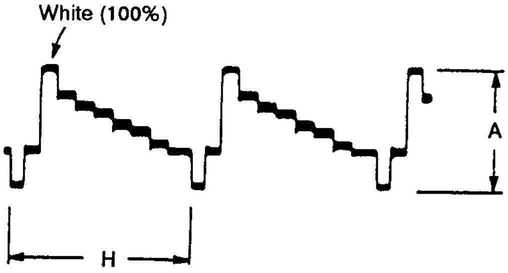


Fig. 9-17.

9. PB LINE OUT Level Adjustment

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-8CSP) Color bar section
Measurement Point	Pin ⑭ of W304 (S-Y I/O) (JL310)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5B (PB LINE LEVEL)
Specified Value	A=1.0 ± 0.025V

Note 1: Insert the plug into the S VIDEO output terminal.
2: Terminate the Y signal terminal of the S VIDEO output terminal at 75Ω .

Adjusting method:

1) Release the protect.
Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 5B, and adjust so that the video signal level (A) becomes the specified value.
3) Press the PAUSE button of the adjusting remote control unit.

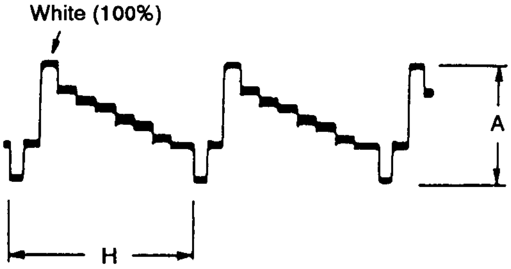


Fig. 9-18.

10. Normal Mode Y FM Carrier Frequency Adjustment (VS-98 board)

Mode	E-E
Signal	No signal
Measurement Point	Pin ㊸ of IC401 (Y RF OUT) (JL428)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4F (CAR.-L)
Specified Value	4.38 ± 0.04 MHz

Adjusting method:

1) Insert a MP type tape.
2) Release the protect.
Page: 1, address: 00, data: 01
3) Change the data of page: D, address: 4F, and adjust so that the Y FM carrier frequency becomes the specified value.
4) Press the PAUSE button of the adjusting remote control unit.

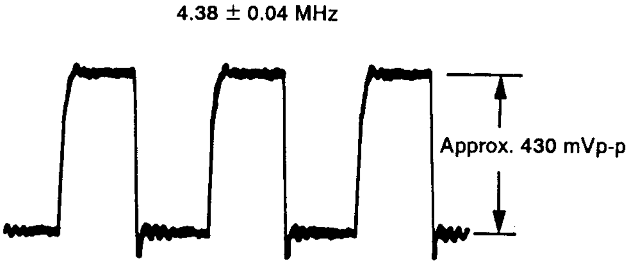


Fig. 9-19.

11. Normal Mode Y FM Deviation Adjustment (VS-98 board)

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑮ of IC401 (JL435)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	51 (DEV.-L)
Specified Value	A=0.50 ± 0.025V

Note: Check that "Emphasis Input Level Adjustment", and "PB Y Level Adjustment" have been completed.

Adjusting method:

1) Insert a MP type tape.
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Record the color bar signal.
4) Playback the recorded signal.
5) Check the playback signal level (A).
   Specification:A=0.50 ± 0.01V
6) If the specification is not satisfied, change the data of page: D, address: 51, and repeat steps 3) to 5).

Playback signal level	Changing the data
When smaller than the specified value	Increase
When bigger than the specified value	Decrease

7) Press the PAUSE button of the adjusting remote control unit.
8) Perform "Normal Mode Y FM Carrier Frequency Adjustment".

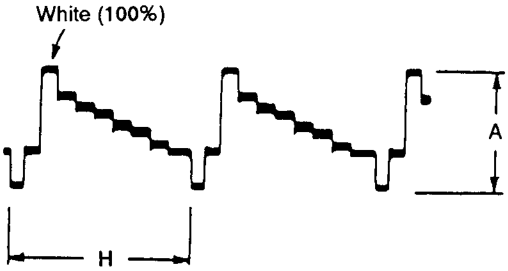


Fig. 9-20.

12. Hi8 Mode Y FM Carrier Frequency Adjustment (VS-98 board)

Mode	E-E
Signal	Non signal
Measurement Point	Pin ㊸ of IC401 (Y RF OUT) (JL428)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4E (CAR.-E)
Specified Value	6.00 ± 0.04 MHz

Adjusting method:

1) Insert a ME type tape, and check that the "Hi8" switch is at "Auto".
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Change the data of page: D, address: 4E, and adjust so that the Y FM carrier frequency becomes the specified value.
4) Press the PAUSE button of the adjusting remote control unit.

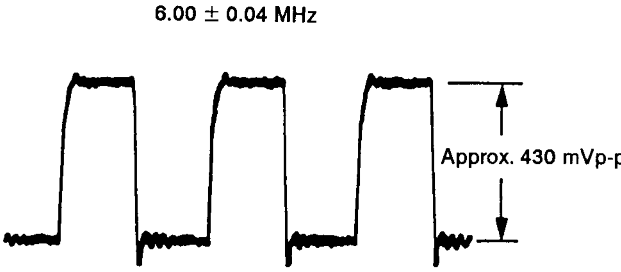


Fig. 9-21.

13. Hi8 Mode Y FM Deviation Adjustment (VS-98 board)

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑮ of IC401 (JL435)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	50 (DEV.-E)
Specified Value	A=0.50 ± 0.025V

Note: Check that "Emphasis Input Level Adjustment" and "PB Y Level Adjustment" have been completed.

Adjusting method:

1) Insert a ME type tape, and check that the "Hi8" switch is at "Auto".
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Record the color bar signal.
4) Playback the recorded signal.
5) Check the playback signal level (A).
   Specification: A=0.50 ± 0.01V
6) If the specification is not satisfied, change the data of page: D, address: 50, and repeat steps 3) to 5).

Playback signal level	Changing the data
When smaller than the specified value	Increase
When bigger than the specified value	Decrease

7) Press the PAUSE button of the adjusting remote control unit.
8) Perform "Hi8 Mode Y FM Carrier Frequency Adjustment".

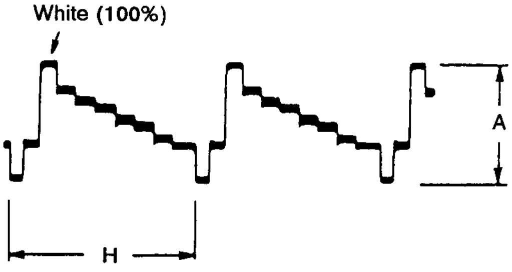


Fig. 9-22.

14. Chroma Emphasis fo Adjustment (VS-98 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ㉔ of IC501 (JL504)
Measuring Instrument	Oscilloscope
Adjustment Element	FL502
Specified Value	Minimum fo component

Adjusting method

1) Adjust FL502 so that the amplitude of the latter section of the chroma signal (yellow section) becomes minimum.

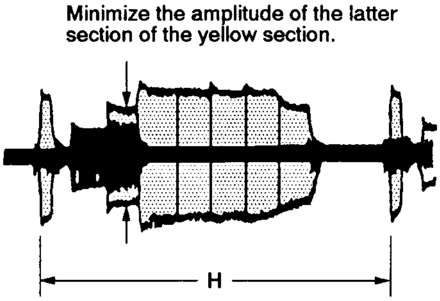

Minimize the amplitude of the latter section of the yellow section.
H

Fig. 9-23.

15. REC C RF Level Adjustment (VS-98 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ③ of IC503 (REC C RF) (JL427)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	46 (REC C RF)
Specified Value	A=66.4 ± 5 mVp-p

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 46, and adjust so that the amplitude (A) of the flat part of the chroma signal (red) becomes the specified value.
3) Press the PAUSE button of the adjusting remote control unit.

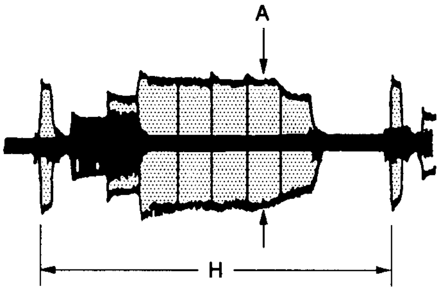


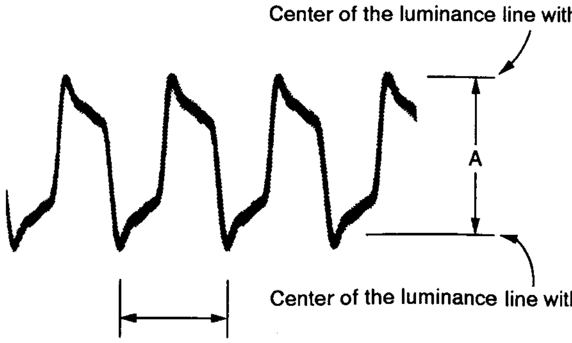
Fig. 9-24.

16. REC Y Level Adjustment (FP-484 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑦ of CN002 (REC 1a)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	52 (REC Y CONT (ME E)) 53 (REC Y CONT (MP E)) 54 (REC Y CONT (ME L)) 55 (REC Y CONT (MP L))
Specified Value	A=300 ± 5 mVp-p

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
- ME tape Hi8 mode (ME E mode) adjustment
2) Insert the ME tape, and set the record mode.
3) Check that the Hi8 switch is at "Auto".
4) Change the data of page: D, address: 52, and adjust so tha REC Y level (A) becomes the specified value.
5) Press the PAUSE button of the adjusting remote contro unit.
- Hi8 MP tape Hi8 mode (MP E mode) adjustment
6) Insert the Hi8 MP tape, and set the record mode.
7) Check that the Hi8 switch is at "Auto".
8) Change the data of page: D, address: 53, and adjust so tha the REC Y level (A) becomes the specified value.
9) Press the PAUSE button of the adjusting remote contro unit.
- ME tape normal mode (ME L mode) adjustment
10) Turn the Hi8 switch off.
11) Insert the ME tape, and set the record mode.
12) Change the data of page: D, address: 54, and adjust so tha the REC Y level (A) becomes the specified value.
13) Press the PAUSE button of the adjusting remote contro unit.
14) Set the Hi8 switch to "Auto".
- MP tape normal mode (MP L mode) adjustment
15) Insert the MP tape, and set the record mode.
16) Change the data of page: D, address: 55, and adjust so tha the REC Y level (A) becomes the specified value.
17) Press the PAUSE button of the adjusting remote contro unit.



Hi8 (E) mode: Approx. 0.17 μsec
Normal (L) mode: Approx. 0.23 μsec

Fig. 9-26.

17. REC L CONT Adjustment (FP-484 board)

Mode	Record (SP)
Signal	Color bar
Measurement Point	Pin ⑦ of CN002 (REC 1a)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5C (REC L CONT (ME E SP)) 5D (REC L CONT (MP E SP)) 5E (REC L CONT (ME L SP)) 5F (REC L CONT (MP L SP)) 60 (REC L CONT (ME E LP)) 61 (REC L CONT (MP E LP)) 62 (REC L CONT (ME L LP)) 63 (REC L CONT (MP L LP))
Specified Value	ME tape Hi8 mode (ME E) A=57 ± 2 mVp-p Hi8 MP tape Hi8 mode (MP E) A=38 ± 2 mVp-p ME tape normal mode (ME L) A=57 ± 2 mVp-p MP tape normal mode (MP L) A=48 ± 2 mVp-p

Note: Check that the REC MODE switch is at "SP".

Connection
1) Remove the AU-143 board CN603.
2) Connect the contact point of R178 and R176 (near pin (85) of IC153) to the GND with a 0.01 μF capacitor (1-101-004-00).

Adjusting method:
1) Release the protect.
   Page: 1, address: 00, data: 00
2) After memorizing each data of address: 52 to address: 55 of page: D, set data: 00 to each address.
   (Minimizing the REC Y RF level)
- ME tape Hi8 mode (ME E mode) adjustment
3) Insert the ME tape, and set the record mode.
4) Check that the Hi8 switch is at "Auto".
5) Change the data of page: D, address: 5C, and adjust so that REC C RF level (A) becomes the specified value.
6) Press the PAUSE button of the adjusting remote control unit.
- Hi8 MP tape Hi8 mode (MP E mode) adjustment
7) Insert the Hi8 MP tape, and set the record mode.
8) Check that the Hi8 switch is at "Auto".
9) Change the data of page: D, address: 5D, and adjust so that the REC C RF level (A) becomes the specified value.
10) Press the PAUSE button of the adjusting remote control unit.
- ME tape normal mode (ME L mode) adjustment
11) Turn the Hi8 switch off.
12) Insert the ME tape, and set the record mode.
13) Change the data of page: D, address: 5E, and adjust so that the REC C RF level (A) becomes the specified value.
14) Press the PAUSE button of the adjusting remote control unit.
15) Set the Hi8 switch to "Auto".
- MP tape normal mode (MP L mode) adjustment
16) Insert the MP tape, and set the record mode.
17) Change the data of page: D, address: 5F, and adjust so that the REC C RF level (A) becomes the specified value.
18) Press the PAUSE button of the adjusting remote control unit.
19) Set data to address: 60, 61, 62, 63 of page: D as shown in the following table.
   (Be sure to press the PAUSE button of the adjusting remote control unit after setting each data.)

Address	Data
60	Same data as address: 5C
61	Same data as address: 5D
62	Same data as address: 5E
63	Same data as address: 5F

- Processing after adjustments
20) Set the data memorized at step 2) to each address from address: 52 to address: 55 of page: D. and press the PAUSE button of the adjusting remote control unit.

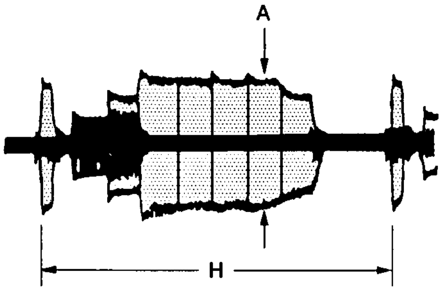


Fig. 9-26.

18. REC C Preset Adjustment (FP-484 board)

Mode	Record (SP)
Signal	Color bar
Measurement Point	CH1 (1:1 probe) CH1a: Pin ⑦ of CN002 CH2a: Pin ⑧ of CN002 CH1b: Pin ⑤ of CN002 CH2b: Pin ⑥ of CN002 CH2 (10: 1 probe) Video input/output terminal
Measuring Instrument	Oscilloscope TRIGGER SOURCE: CH2
Adjustment Page	D
Adjustment Address	30 (REC C 1A (ME)), 31 (REC C 1A (MP)), 32 (REC C 1B (ME)), 33 (REC C 1B (MP)), 34 (REC C 2A (ME)), 35 (REC C 2A (MP)), 36 (REC C 2B (ME)), 37 (REC C 2B (MP))
Specified Value	A=57 ± 2 mVp-p

Note 1: Use a ME type tape, and check that the "Hi8" switch is at "Auto".
2: Check that the REC MODE switch is at "SP".

Connection:
1) Remove the AU-143 board CN603.
2) Connect the contact point of R178 and R176 of the VS-98 board (near pin (85) of IC153) to GND with a 0.01 μF capacitor (1-101-004-00).

Adjusting method:
1) Release the protect.
   Page: 1, address: 00, data: 01
2) After memorizing the data of page: D, address: 52, set data: 00. (Minimizing the REC Y RF level)
3) Connect CH1 probe of the oscilloscope to pin ⑦ of CN002 (REC 1a).
4) Change the data of page: D, address: 30, and adjust so that the CH1a REC C level (A) becomes the specified value.
5) Press the PAUSE button of the adjusting remote control unit.
6) Adjust each REC C LEVEL of CH2a (address: 34), CH1b (address: 32) and CH2b (address: 36) in the same way.
7) Set data to address: 31, 33, 35, 37 of page: D as shown i the following table. (Be sure to press the PAUSE button o the adjusting remote control unit after setting each data.)

Address	Data
31	Same data as address: 30
33	Same data as address: 32
35	Same data as address: 34
37	Same data as address: 36

8) Set the data memorized at step 2) to page: D, address: 52, and press the PAUSE button of the adjusting remote control unit.

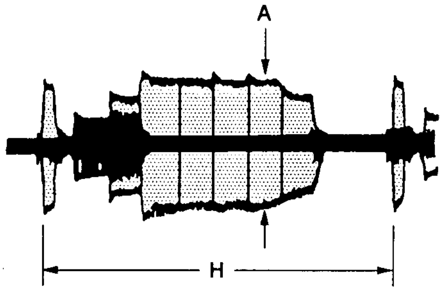


Fig. 9-27.

19. REC ATF Level Check (FP-484 board)

Mode	Record (SP)
Signal	No signal
Measurement Point	CH1a: (CN002 ⑦), CH2a: (CN002 ⑧), CH1b: (CN002 ⑤), CH2b: (CN002 ⑥)
Measuring Instrument	Oscilloscope
Specified Value	A=15.0 ± 2.0 mVp-p

Note 1: Use a MP type tape, and check that the "Hi8" switch is at "Auto".

2: Check that the REC MODE switch is at "SP".

Connection:

1) Remove the AU-143 board CN603.

Checking method:

1) Release the protect.
   Page: 1, address: 00, data: 01.
2) After memorizing the data of page: D, address: 55, set data: 00. (Minimizing the REC Y RF level)
3) Check that the REC ATF signal level (A) satisfies the specified value for each channel from CH1a to CH2a.
4) Set the data memorized at step 2) to page: D, address: 55, and press the PAUSE button of the adjusting remote control unit.

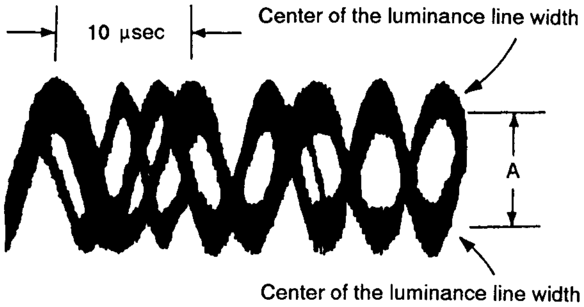

10 μsec
Center of the luminance line width
A
Center of the luminance line width

Fig. 9-28.

20. Chroma Flicker Check and Adjustment (VS-98 board)

Mode	Self recording/playback (LP)
Signal	Color bar
Measurement Point	CH-1 (1: 1 probe): Pin ㊷ of IC501 of VS-98 board (PBC RF IN) CH-2 (10: 1 probe): Pin ⑩ of CN002 of FP-484 board ($\overline{\text{1/2 RF SWP}}$)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment address	30 (REC C 1A (ME)), 31 (REC C 1A (MP)), 32 (REC C 1B (ME)), 33 (REC C 1B (MP)), 34 (REC C 2A (ME)), 35 (REC C 2A (MP)), 36 (REC C 2B (ME)), 37 (REC C 2B (MP))
Specified Value	$\frac{Vc1a}{Vc1b}\times100=100^{+18}_{-16}$ (%) $\frac{Vc2a}{Vc2b}\times100=100^{+18}_{-16}$ (%)

Note 1: Check that "REC C Preset Adjustment", and "REC ATF Level Check" have been completed.

2: Use a ME type tape and check that the "Hi8" switch is at "Auto".

Checking method:

1) Record the color bar signal.
2) Playback the recorded section.
3) Name each playback level of channels 1a, 1b, 2a, 2b to Vc1a, Vc1b, Vc2a, Vc2b respectively.
4) Check that the specified values have been satisfied. If not, perform the following adjustments.

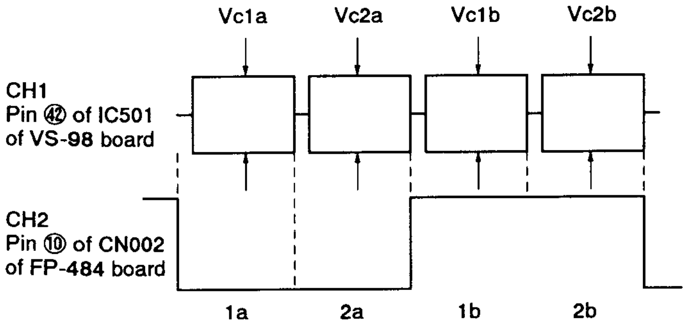


Fig. 9-29.

Adjusting method:

1) If the specifications are not satisfied, calculate the following values from the measuring values.
$\Delta Vc1=|Vc1a-Vc1b|/2$
$\Delta Vc2=|Vc2a-Vc2b|/2$

Note: | | is the absolute value.

2) The smaller value when the playback levels are Vc1a, Vc1b is

$$\left\{\frac{\text{(The smaller value of Vc1a and Vc1b)} + \Delta Vc1}{\text{(The smaller value of Vc1a and Vc1b)}}\right\}\times 57\ (\text{mVp-p})$$

The greater value when the playback values are Vc1a, Vc1b is

$$\left\{\frac{\text{(The greater value of Vc1a and Vc1b)} - \Delta Vc1}{\text{(The greater value of Vc1a and Vc1b)}}\right\}\times 57\ (\text{mVp-p})$$

The smaller value when the playback levels are Vc2a, Vc2b is

$$\left\{\frac{\text{(The smaller value of Vc2a and Vc2b)} + \Delta Vc2}{\text{(The smaller value of Vc2a and Vc2b)}}\right\}\times 57\ (\text{mVp-p})$$

The greater value when the playback values are Vc2a, Vc2b is

$$\left\{\frac{\text{(The greater value of Vc2a and Vc2b)} - \Delta Vc2}{\text{(The greater value of Vc2a and Vc2b)}}\right\}\times 57\ (\text{mVp-p})$$

3) Perform [REC C Preset Adjustment] with the value calculated from Vc1a, Vc1b, Vc2a, Vc2b at step 2), as the specified value for 1a, 1b, 2a, and 2b.
4) After the adjustment, perform "Chroma Flicker Check" again, and repeat the adjustment until the specified value is satisfied.

21. REC AFM Level Check (FP-484 board)

Mode	Record (SP)
Signal	No signal
Measurement Point	CH1a: (CN002 ⑦), CH2a: (CN002 ⑧), CH1b: (CN002 ⑤), CH2b: (CN002 ⑥)
Measuring Instrument	Oscilloscope
Specified Value	A=12.0 ± 2.5 mVp-p

Note 1: Use a MP type tape, and check that the "Hi8" switch is at "Auto".

2: Do not insert anything into the audio input terminal (right). (Monaural record mode)

Connection:

1) Connect the contact point of R178 and R176 of the VS-98 board (near Pin (85) of IC153) to GND with a 0.01 μF capacitor (1-101-004-00).

Checking method:

1) Release the protect.
   Page: 1, address: 00, data: 01.
2) After memorizing the data of page: D, address: 55, set data: 00. (Minimizing the REC Y RF level)
3) Check that the REC AFM signal level (A) satisfies the specified value, for each channel from CH1a to CH2a.
4) Set the data memorized at step 2) to page: D, address: 55, and press the PAUSE button of the adjusting remote control unit.

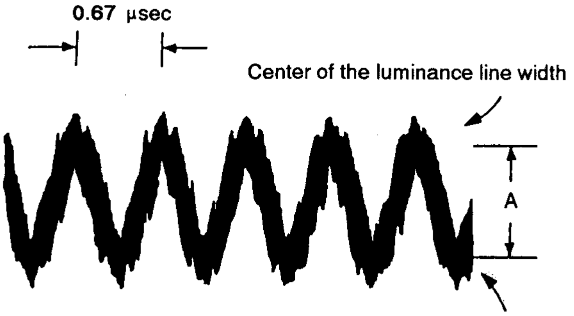

0.67 μsec
Center of the luminance line width
A
Center of the luminance line width

Fig. 9-30.

22. YD Adjustment (VS-98 board)

Mode	Playback
Signal	Color bar tape with dropout (Note 1)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	66 (YD ADJ)
Specified Value	Dropout section should be flat

Note 1: A tape with continuous dropout is made by scratching the magnetic section of a color bar tape which is running with the tip of a precision driver.

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 66, and flatten the dropout section.
3) Press the PAUSE button of the adjusting remote control unit.

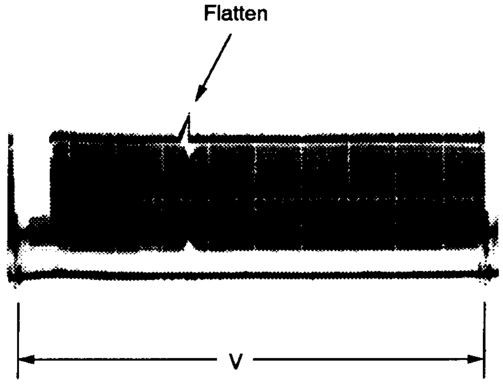


Fig. 9-31.

9-6. INDEX MARKER SYSTEM ADJUSTMENT

1. Playback VCO Free Oscillation Frequency Adjustment (VS-98 board)

Mode	Playback
Signal	Arbitrary tape
Measurement Point	Pin ⑧ of IC261
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	7F (INDEX VCO)
Specified Value	11.27 ± 0.05 MHz

Note: Connect the frequency counter via a high impedance and low capacity buffer amplifier (oscilloscope, etc.).

Connection:

1) Connect Pins ① and ⑥ of IC261 with a jumper wire.
2) Connect the Q264 collector and GND with a jumper wire.

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 7F, and adjust the oscillation frequency to the specified value.
3) Press the PAUSE button of the adjusting remote control unit.

2. REC PCM Level Check (VS-98 board)

Mode	Record
Signal	Arbitrary
Measurement Point	Pin ② of IC001
Measuring Instrument	Oscilloscope
Specified Value	A=250 ± 100 mVp-p

Checking method:

1) Check that the REC ATF level (A) satisfies the specified value.

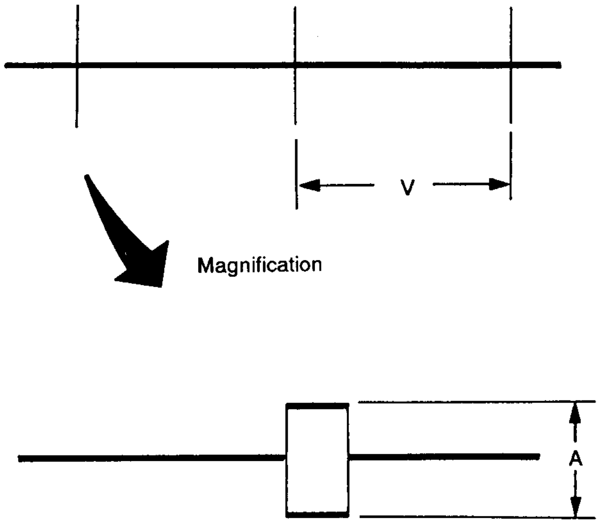


Fig. 9-32.

9-7. AUDIO SYSTEM ADJUSTMENT

- Perform the adjustment using the color bar signal as a video signal input.
- Unless specified otherwise, use a Hi8 ME tape.

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 9-33, and perform adjustments at the power switch [video] position.
Switch the input/output select switch in accordance with the mode as follows.

- Recording mode····Input position
- Playback mode·····Output position

When the input/output select switch is not installed, Connect Pin ⑦ (JACK OUT/$\overline{\text{IN}}$) of JACK ASSY and GND with a jumper wire during Recording mode.

Adjust the Hi-Fi switch (CF-29 board S201) to the following position unless specified otherwise.

- Green (stereo) position

Note: 1) When inputting the audio signal, input the same signal to both L, and R channels, unless specified otherwise.
2) Be sure to insert the plug (shorting plug or dummy plug, etc.) into the audio input/output terminal (right). If the plug is not inserted, the unit will be set into the monaural mode, and correct adjustments cannot be carried out.
(Monaural mode)
During recording ·· REC AFM RF1.7 MHz carrier will not be output.
During playback ·· The L+R signal will be output from the audio input/output terminal (left).
3) The items to be adjusted for the R channel will be indicated within the [ ], in regard to the adjusting items to be adjusted for both L and R channels.

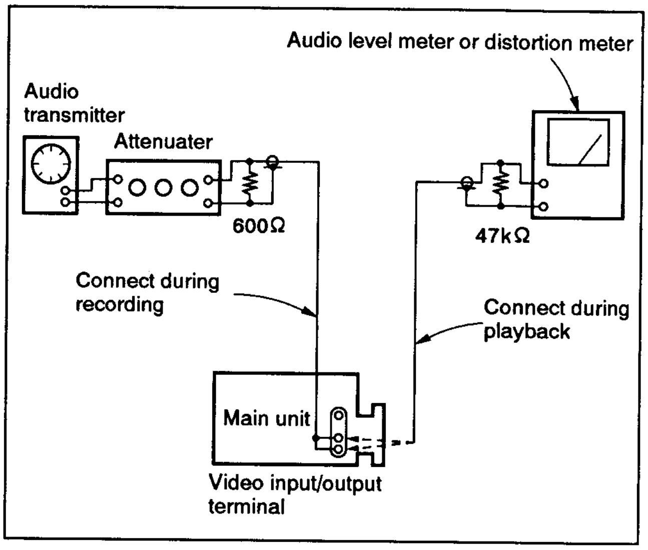


Fig. 9-33.

[Adjustment Procedure]

1) 1.5 MHz carrier frequency check
2) 1.7 MHz carrier frequency check
3) 1.5 MHz recording level check
4) 1.7 MHz recording level check
5) E-E output level check
6) REC matrix L–R adjustment
7) REC matrix L+R check
8) IR adjustment
9) 1.5 MHz deviation adjustment
10) 1.7 MHz deviation adjustment
11) PB matrix L adjustment
12) PB matrix R check
13) Overall level characteristics, distortion check
14) Separation check
15) Overall noise level check

1. 1.5 MHz Carrier Frequency Check (AU-143 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑧ of IC601
Measuring Instrument	Frequency counter (Note 1)
Specified Value	1.500 ± 0.002 MHz

Note: Use a high impedance (above 1 MΩ) and low capacity (below 20 pF) probe.

Checking method:

1) Check that the 1.5 MHz carrier frequency satisfies the specified value.

2. 1.7 MHz Carrier Frequency Check (AU-143 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑧ of IC602
Measuring Instrument	Frequency counter (Note 1)
Specified Value	1.700 ± 0.002 MHz

Note: 1) Use a high impedance (above 1 MΩ) and low capacity (below 20 pF) probe.
2) Insert a shorting plug into the audio input terminal (right).

Checking method:

1) Check that the 1.7 MHz carrier frequency satisfies the specified value.

3. 1.5 MHz Record Level Check (AU-143 board)

Mode	Record (Monaural)
Signal	No signal
Measurement Point	Pin ② of CN603 (REC AFM)
Measuring Instrument	Oscilloscope
Specified Value	A=34 ± 5 mVp-p

Note: Do not insert the plug into the audio input terminal (right).

Checking method:

1) Check that the 1.5 MHz carrier level satisfies the specified value.
(Read the center of the luminance line width and note down the level read.)

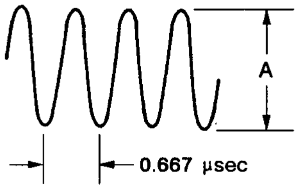


Fig. 9-34.

4. 1.7 MHz Record Level Check (AU-143 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ② of CN603 (REC AFM)
Measuring Instrument	Oscilloscope
Specified Value	$\frac{\text{1.7 MHz carrier level}}{\text{1.5 MHz carrier level}}=0.80 \pm 0.12$

Note: Insert a shorting plug into the audio input terminal (right).

Connection:

1) Remove and check C689 (0.01 μF). After checking, connect a new capacitor.

Checking method:

1) Check that the level ratio of 1.5 MHz carrier and 1.7 MHz carrier satisfies the specified value.

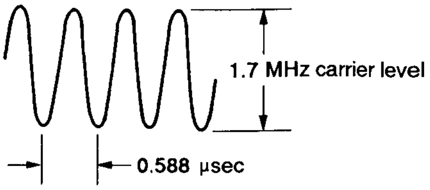


Fig. 9-35.

5. E-E Output Level Check (AU-143 board)

Mode	Record
Signal	400 Hz, –7.5 dBs audio input terminal right [left]
Measurement Point	Pin ⑨ of IC604 [Pin ① of IC604]
Measuring Instrument	Oscilloscope
Specified Value	925^{+240}_{-190} mVp-p (–7.5 ± 2 dBs)

Checking method:

1) Check that the 400 Hz signal level satisfies the specified value.

6. REC Matrix L-R Adjustment (AU-143 board)

Mode	Record
Signal	400 Hz, –7.5 dBs Input to both left and right terminals of the audio input terminal
Measurement Point	Pin ㉛ of IC602
Measuring Instrument	Oscilloscope (Use 1:1 probe)
Adjustment Page	D
Adjustment Address	78 (REC/PB MX (REC))
Specified Value	0 ± 5 mVp-p

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 78, and minimize the 400 Hz signal level.
3) Press the PAUSE button of the adjusting remote control unit.

7. REC Matrix L+R Check (AU-143 board)

Mode	Record
Signal	1. 400 Hz, –7.5 dBs: Audio input terminal left No signal: Audio input terminal right 2. No signal: Audio input terminal left 400 Hz, –7.5 dBs: Audio input terminal right
Measurement Point	Pin ㉛ of IC601
Measuring Instrument	Oscilloscope
Specified Value	The level difference is 0 ± 10 mVp-p when only the left terminal is input and when only the right terminal is input.

Note: When measuring the signal level of pin ㉛ of IC601, wait for more than 1 minute after signal input before measuring. (To stabilize the AGC)

Adjusting method:

1) Input the 400 Hz, –7.5 dBs signal only to the audio input terminal (left). (Insert the shorting plug to the audio input terminal (right).)
2) Read the 400 Hz signal level of pin ㉛ of IC601, and take it down. (Approximately 200 mVp-p)
3) Input the 400 Hz, –7.5 dBs signal only to the audio input terminal (right). (Insert the shorting plug to the audio input terminal (left).)
4) Check that the 400 Hz signal level of pin ㉛ of IC601 is (the value that was taken down at step 2) ± 10 mVp-p.

8. IR Adjustment (AU-143 board)

Mode	Playback
Signal	Alignment tape: AFM stereo For checking operations (WR5-9CS)
Measurement Point	Pins ㊹ and ⑥ of IC601 (1.5 MHz IR) Pins ㊹ and ⑥ of IC602 (1.7 MHz IR)
Measuring Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	7A (1.5 IR), 7C (1.7 IR)
Specified Value	The DC voltage difference between pins ㊹ and ⑥ is 0 ± 10 mVdc

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01

- 1.5 MHz IR adjustment

2) Connect the digital voltmeter to pin ㊹ of IC601, and read the voltage. (Approximately 2100 mVdc)
3) Connect the digital voltmeter to pin ⑥ of IC601.
4) Change the data of page: D, address: 7A, and adjust so that the voltage of pin ⑥ of IC601 becomes equal to the voltage of pin ㊹. (Voltage difference below 10 mVdc)
5) Press the PAUSE button of the adjusting remote control unit.

- 1.7 MHz IR adjustment

6) Connect the digital voltmeter to pin ㊹ of IC602, and read the voltage. (Approximately 2100 mVdc)
7) Connect the digital voltmeter to pin ⑥ of IC602.
8) Change the data of page: D, address: 7C, and adjust so that the voltage of pin ⑥ of IC602 becomes equal to the voltage of pin ㊹. (Voltage difference below 10 mVdc)
9) Press the PAUSE button of the adjusting remote control unit.

9. 1.5 MHz Deviation Adjustment

Mode	Playback
Signal	Alignment tape: For checking the operation (WR5-5CSP)
Measurement Point	Audio output terminal left or right
Measuring Instrument	Oscilloscope, Level meter
Adjustment Page	D
Adjustment Address	7B (1.5 DEV)
Specified Value	-7.5 ± 0.5 dBs

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 7B, and adjust so that the 400 Hz signal level becomes the specified value.
3) Press the PAUSE button of the adjusting remote control unit.

10. 1.7 MHz Deviation Adjustment (AU-143 board)

Mode	Playback
Signal	Alignment tape: AFM stereo For checking operations (WR5-9CS) Bilingual (Monoscope) section
Measurement Point	1. Pin ⑨ of IC604 2. Pin ① of IC604
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7D (1.7 DEV)
Specified Value	8 ± 0.05 graduation

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Connect the oscilloscope to pin ⑨ of IC604.
3) Adjust the 400 Hz signal amplitude to the 8.0 graduation using the VOLT/DIV knob of the oscilloscope.
4) Connect the oscilloscope to pin ① of IC604.
5) Change the data of page: D, address: 7D, and adjust so that the 1 kHz signal level becomes 8 ± 0.05 graduation. (Adjust with the center of the luminance line width.)
6) Press the PAUSE button of the adjusting remote control unit.

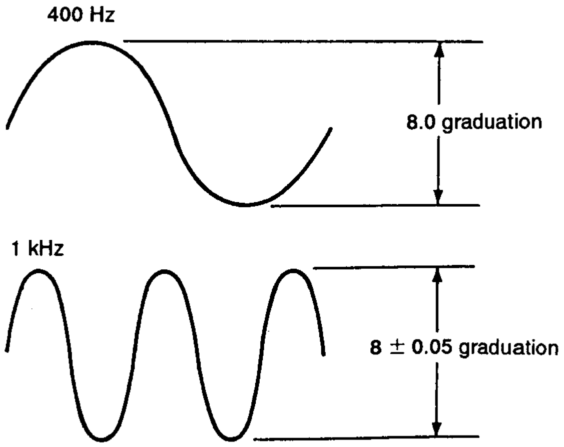


Fig. 9-36.

11. PB Matrix L Adjustment

Mode	Self recording/playback
Signal	No signal: Audio input terminal (left) 400 Hz, -7.5 dBs: Audio input terminal (right)
Measurement Point	Pin ⑨ of IC604
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	79 (REC/PB MX (PB))
Specified Value	Below 20 mVp-p

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Input the 400 Hz, -7.5 dBs signal only to the audio input terminal (right). (Insert the shorting plug to the audio input terminal (left).)
3) Record.
4) Remove the input signal.
5) Playback the recorded section.
6) Change the data of page: D, address: 79, and minimize the cross talk component (400 Hz).
7) Press the PAUSE button of the adjusting remote control unit.

12. PB Matrix R Check

Mode	Self recording/playback
Signal	400 Hz, -7.5 dBs: Audio input terminal (left) No signal: Audio input terminal (right)
Measurement Point	Pin ① of IC604
Measuring Instrument	Oscilloscope
Specified Value	Below 30 mVp-p

Checking method:

1) Input the 400 Hz, -7.5 dBs signal only to the audio input terminal (left). (Insert the shorting plug to the audio input terminal (right).)
2) Record.
3) Remove the input signal.
4) Playback the recorded section.
5) Check that the cross talk component (400 Hz) is below 30 mVp-p.

13. Overall Level Characteristics, Distortion Check

Mode	Self recording/playback
Signal	400 Hz, -7.5 dBs: Audio input terminal (left) [right] No signal: Audio input terminal (right) [left]
Measurement Point	Audio output terminal (left) [right]
Measuring Instrument	Audio level meter and distortion meter
Specified Value	Level: -7.5 ± 2 dBs Distortion rate: Below 0.8% (Note 2)

Note: 1) The [ ] indicates the measuring point during the right channel check.
2) Value when the 200 kHz to 6 kHz band-path filter is used

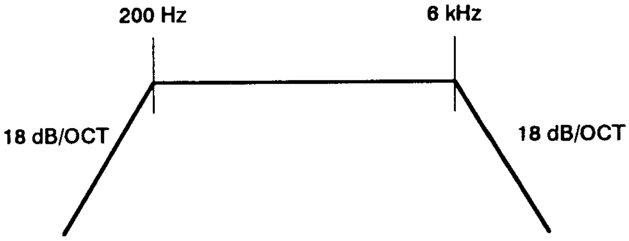


Fig. 9-37.

Checking method:

1) Input the 400 Hz, -7.5 dBs signal only to the audio input terminal (left) [right].
   Note: Be sure to insert the shorting plug to the terminal that was not signal input.
2) Record the signal.
3) Remove the input signal.
4) Playback the recorded section.
5) Check that the 400 Hz signal level of the audio output terminal (left) [right] is -7.5 ± 2 dBs, and that the distortion rate is below 0.8% (Note 2).

14. Separation Check

Mode	Self recording /playback
Signal	No signal: Audio input terminal (left) [right] 400 Hz, -7.5 dBs: Audio input terminal (right) [left]
Measurement Point	Audio output terminal (left) [right]
Measuring Instrument	Audio level meter (Use an IHF-A curve auditory correction filter)
Specified Value	Below -27.5 dBs

Note: The [ ] indicates the measuring point during the right channel check.

Checking method:
1) Insert a shorting plug into the audio input terminal (left) [right], and input a 1kHz, -7.5 dBs signal only to the audio input terminal (right) [left].
2) Record the signal.
3) Remove the input signal.
4) Playback the recorded section.
5) Check that the cross talk level (1 kHz) of the audio output terminal (left) [right] is below -27.5 dBs.

15. Overall Noise Level Check

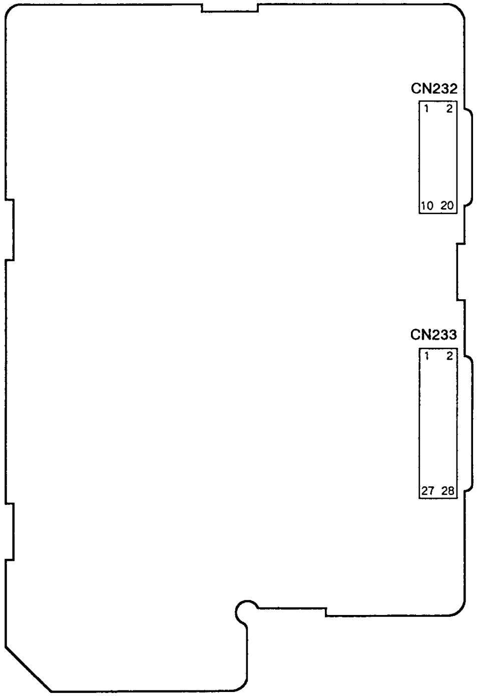
Mode	Self recording
Signal	No signal: Audio input terminal left and right
Measurement Point	Audio output terminal (left) [right]
Measuring Instrument	Audio level meter (Use an IHF-A curve auditory correction filter)
Specified Value	Below -62.5 dBs

Note: The [ ] indicates the measuring point during the right channel check.

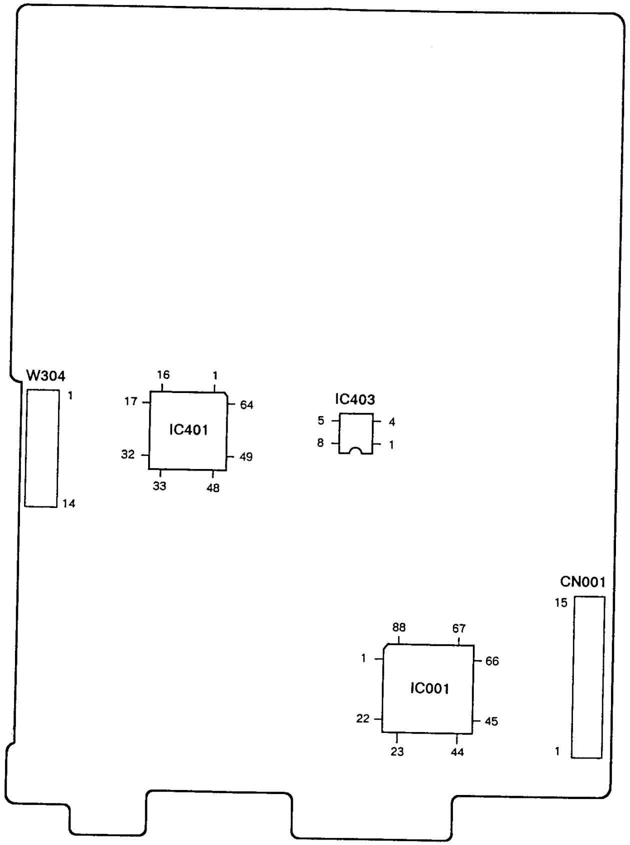
Checking method:
1) Insert the shorting plug to both left and right of the audio input terminals.
2) Record.
3) Remove the shorting plug.
4) Playback the recorded section.
5) Check that the noise level of the audio output terminal (left) [right] is below -62.5 dBs.

9-8. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

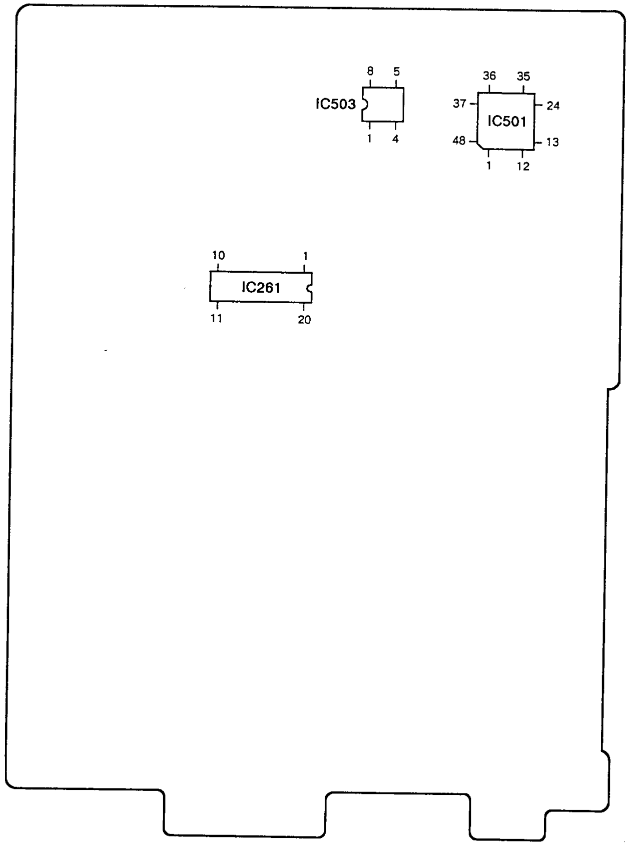
DD-52 BOARD (CONDUCTOR SIDE)


CN232
1 2
10 20
CN233
1 2
27 28

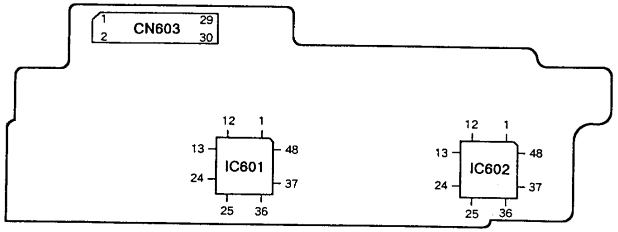
VS-98 BOARD (COMPONENT SIDE)


W304
1
14
IC401
16 1
17 64
32 49
33 48
IC403
5 4
8 1
CN001
15
1
IC001
88 67
1 66
22 45
23 44

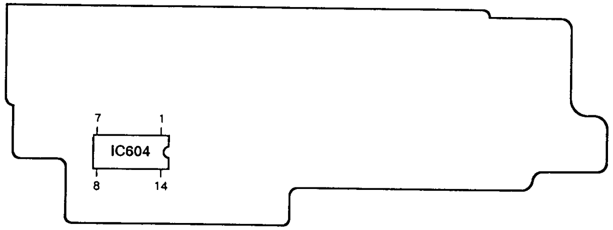
VS-98 BOARD (CONDUCTOR SIDE)


IC503
8 5
1 4
IC501
36 35
37 24
48 13
1 12
IC261
10 1
11 20

AU-143 BOARD (COMPONENT SIDE)


CN603
1 29
2 30
IC601
12 1
13 48
24 37
25 36
IC602
12 1
13 48
24 37
25 36

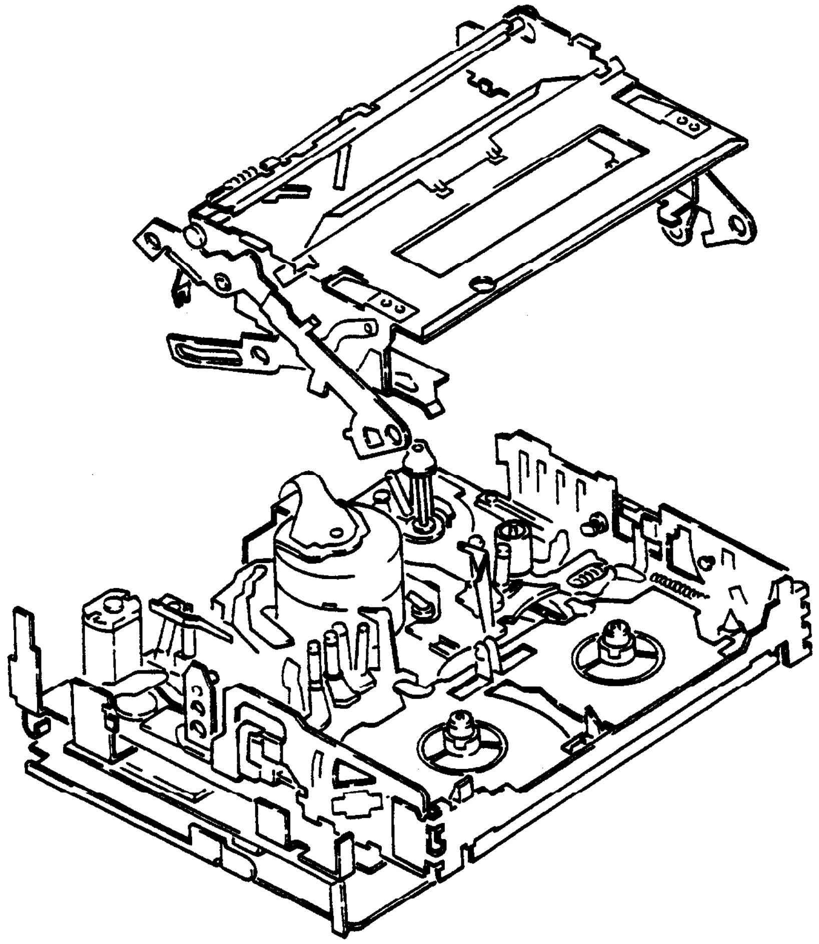
AU-143 BOARD (CONDUCTOR SIDE)


IC604
7 1
8 14

8mm Video MECHANICAL ADJUSTMENT MANUAL II

FL MECHANISM (Q MECHANISM) Video 8

File with the SERVICE MANUAL



8 VIDEO RECORDER

SONY®

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1. PREPARATION FOR MECHANICAL CHECK, ADJUSTMENT AND MAINTENANCE

For removal of the cabinet and boards, refer to "Disassembly" in each Service Manual.
Mechanical adjustment is done in the USE mode. (To select the USE mode, refer to "1-4 Handling of Mode Selector".)

1-1 CASSETTE COMPARTMENT HOLDER ASSEMBLY (Fig. 1)

1. Removal

1) Select the USE mode.
2) Remove the screw ●, and then, the LS support ●.
3) Remove the four screws ●, and then, the LS frame assy ●.
4) Remove the three lock washers ●, and then, the washer ●, bar, joint ●, T protector assy ●, and TP arm assy ● in that order.
5) Remove the two screws●, and then, the two arm shafts A●.
6) Remove the shaft through the long hole●. With the cassette compartment holder assembly●rotated in a direction of the arrowⒶ, remove the long holes●and●from the shaft in that order, and then, remove the cassette compartment holder assembly●.
7) Slide the BS holder●in a direction of the arrow Ⓑ as shown in Fig. A and remove it in a direction of the arrowⒸ.

Note : When this is done, be careful not to drop the steel ball and spring, compression out of the BS holder ●.

2. Mounting

1) Select the USE mode.
2) Mount the BS holder●in the reverse order of its removal.
Note: Refer to Fig. A.
3) Mount the shafts in the order of the long holes ●, ●and● of the cassette compartment holder assembly●, respectively.

Note : When this is done, rotate the cassette compartment holder assembly●in a direction of the arrowⒶ to mount it until the long hole is aligned with the oval shape of the shaft.

4) Align the oval shape of the two arm shafts A●with the long holes of the LS chassis, fit them in firmly and fix with the two screws●.
5) Mount the TP arm assy ●, T protector assy ● and bar, joint ●, respectively. Then, mount the washer ● and three lock washers ●.
6) Mount the LS frame assy ● to the chassis and fix with the four screws ●.
7) Mount the LS support ● to the chassis and fix with the screw ●.

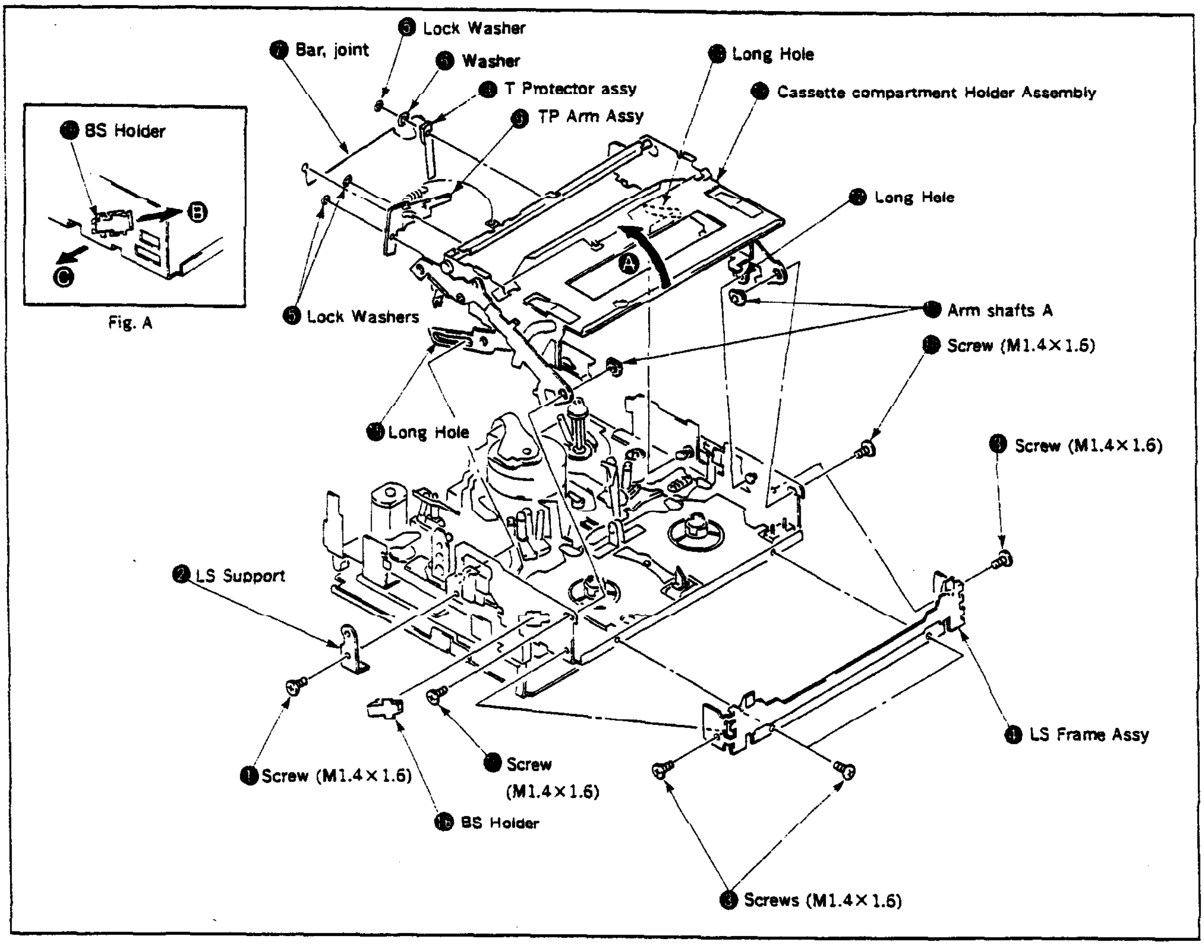

BS Holder
Ⓑ
Ⓒ
Fig. A
Lock Washer
Bar, joint
Washer
T Protector assy
TP Arm Assy
Long Hole
Cassette compartment Holder Assembly
Long Hole
Ⓐ
Lock Washers
Arm shafts A
Screw (M1.4×1.6)
Long Hole
Screw (M1.4×1.6)
LS Support
LS Frame Assy
Screw (M1.4×1.6)
Screw (M1.4×1.6)
BS Holder
Screws (M1.4×1.6)

Fig. 1

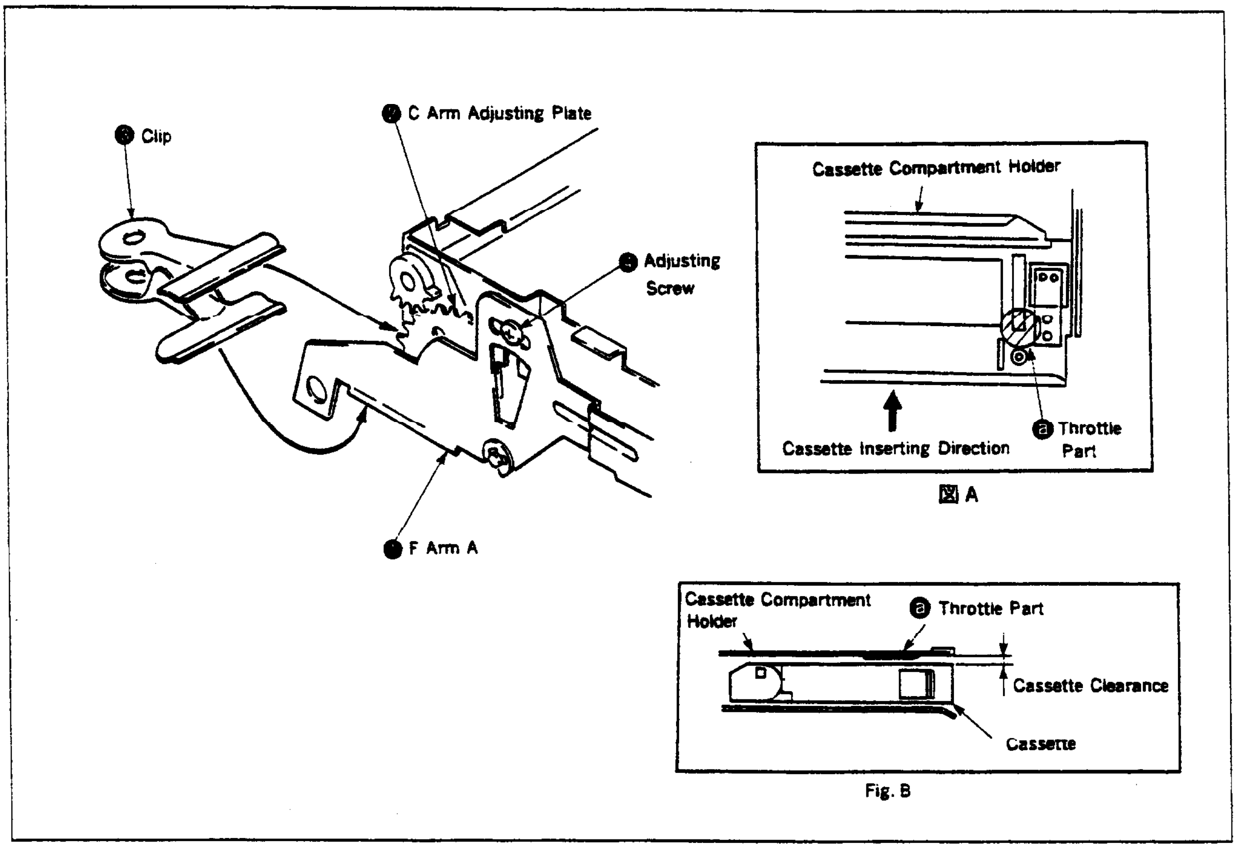
1-2 CASSETTE COMPARTMENT LOCK HEIGHT ADJUSTMENT (Fig. 2)

1) Using a spacer, etc., insert a 15.3mm-thick cassette to lock the cassette compartment.

Note : As shown in Fig. A, a 15.3mm-thick portion may be under the throttle partⓐ.

2) Pressing the partⓐ, nip the F arm A ● and the first tooth of the C arm adjusting plate ● with the clip ●, and tighten the adjusting screw ● at a torque of 1kg•cm.

3) Apply Screw Lock to the adjusting screw ● after making sure of the following clearances between the throttle partⓐ of the cassette compartment holder and the cassette as shown in Fig. B.
   - For 15mm-thick dummy cassette : 0.5 − 0.9
   - For 15.2mm-thick dummy cassette : 0.3 − 0.7


● Clip
● C Arm Adjusting Plate
● Adjusting Screw
● F Arm A
Cassette Compartment Holder
Cassette Inserting Direction
ⓐ Throttle Part
Cassette Compartment Holder
ⓐ Throttle Part
Cassette Clearance
Cassette

図A

Fig. B

Fig. 2

1-3 OPERATION WITH CASSETTE COMPARTMENT HOLDER ASSEMBLY REMOVED

1. Putting into Loading state (Fig. 3)

1) Referring to the Service Manual, supply power with the cabinet and camera section removed. (Make the mechanism deck ready to operate.)
2) Place the cap ● on the LED assembly ●.
3) Press the pin of the push switch ● (ON state) and fix it with adhesive tape ● in that state.
4) Press the locking plate release arm ● in an arrow direction. The set is made ready for loading.

2. Putting into the REC Mode

1) Short the TEST pins (SS-82 board CN404 pins ● and ● for CCD-V11/V88) to place into the TEST mode.

For CCD-V11/V88 ; SS-82 board CN404
TEST pin connector

4	GND
3	$\overline{\text{CAM ADJ}}$
2	$\overline{\text{TEST}}$
1	$\overline{\text{PATH}}$

The set is placed into the TEST mode by shorting the pins ● and ●.

2) After completing the step 1), set the power switch to VTR (or CAMERA).
3) Turn on the REC switch. (If the set is placed in the TEST mode, detection of S and T reel table rotation is disabled and the tape can run.)

3. Putting into EJECT

1) Turn on the EJECT switch.

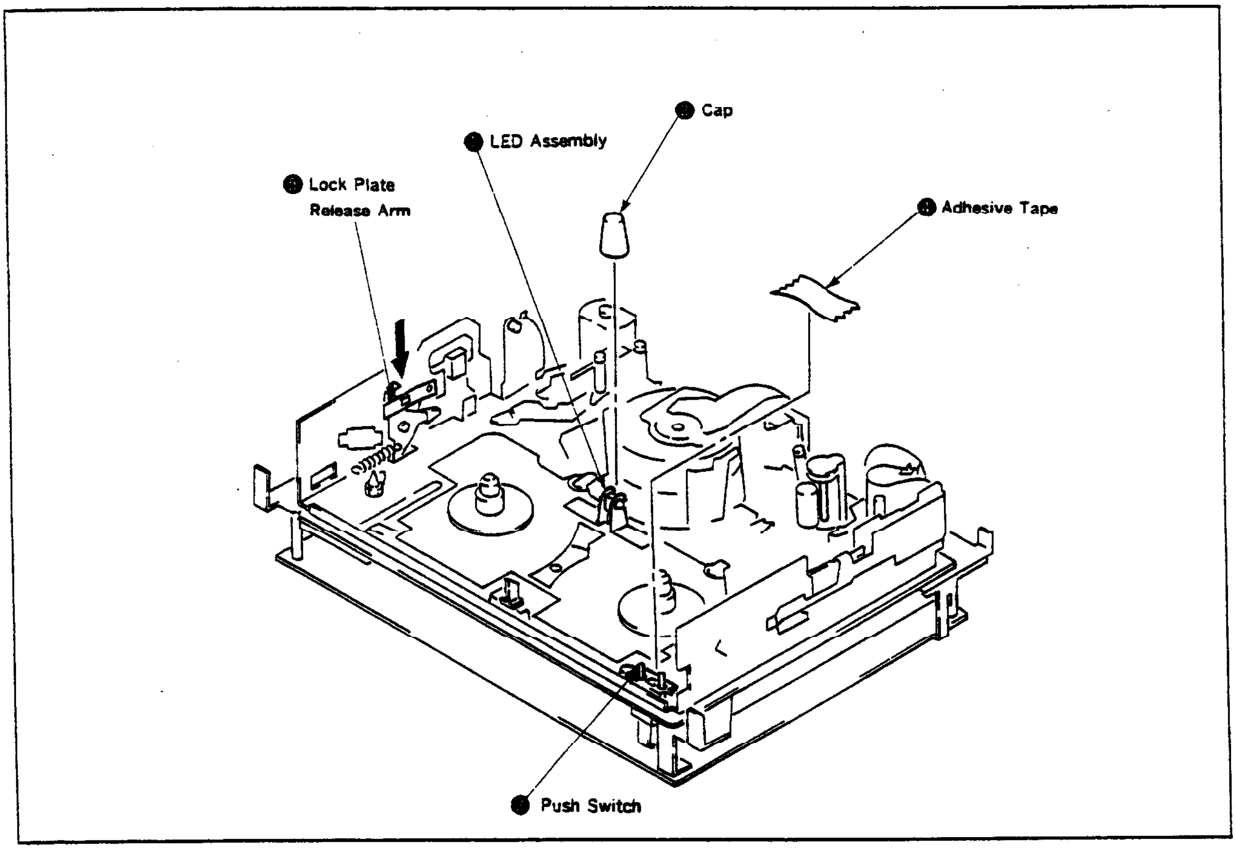


Fig. 3

1-4 HANDLING OF MODE SELECTOR

- Mount the MODE SELECTOR III panel to the mode selector. U, FL, O and O' mechanisms have different mode indications respectively. Select your disired type. (Fig. 4)

1. Construction (Fig. 5)

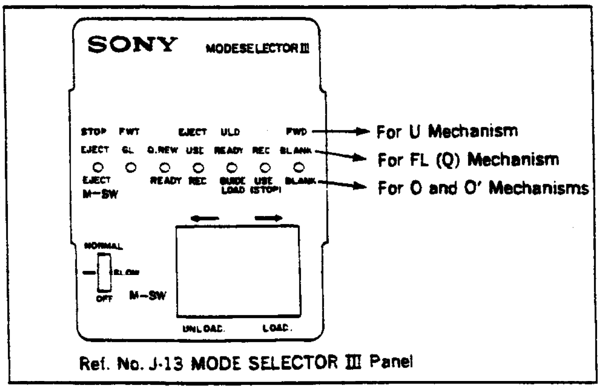
2. Connection (Fig. 6)

For CCD-VII/V88

1) Remove the plate, ornamental ●.
2) Remove the screw ●, and then, the LB-12 board ●.
3) Remove the FP-114 flexible connector ● and loading motor connector ●, and insert them into the MODE SELECTOR III conversion connector respectively.
4) Insert the M-SW connector of the mode selector into the MODE SELECTOR III conversion connector.

3. Handling

1) Use the M mode selector buttons only.
2) During mode selection, "BLANK" lights up when no mode is being selected.
3) If the right M mode selector button is kept pressed, EJECT, USE, GL, Q.REW, GL, REC and READY light up in that order.
4) When changing over from the READY mode back to the EJECT mode, press the left M mode selector button to select your desired mode.


SONY
MODESELECTOR III
STOP FWT EJECT ULD FWD
EJECT GL Q.REW USE READY REC BLANK
EJECT READY REC GUIDE LOAD USE (STOP) BLANK
M-SW
NORMAL
SLOW
OFF
M-SW
UNLOAD.
LOAD.
For U Mechanism
For FL (Q) Mechanism
For O and O' Mechanisms

Ref. No. J-13 MODE SELECTOR III Panel

Fig. 4

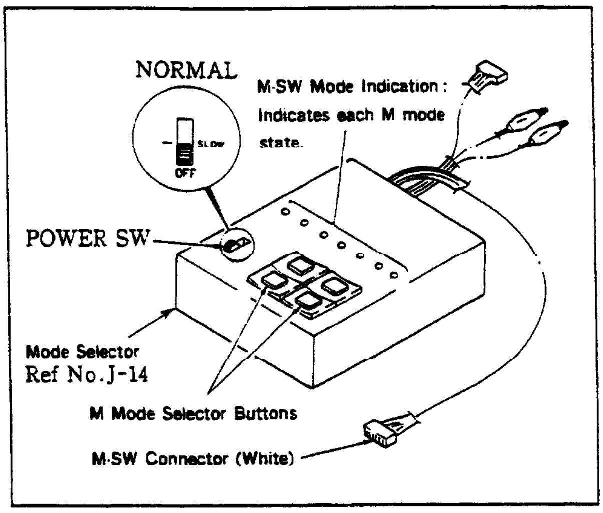

NORMAL
SLOW
OFF
M-SW Mode Indication : Indicates each M mode state.
POWER SW
Mode Selector
Ref No.J-14
M Mode Selector Buttons
M-SW Connector (White)

Fig. 5

For CCD-V11/V88

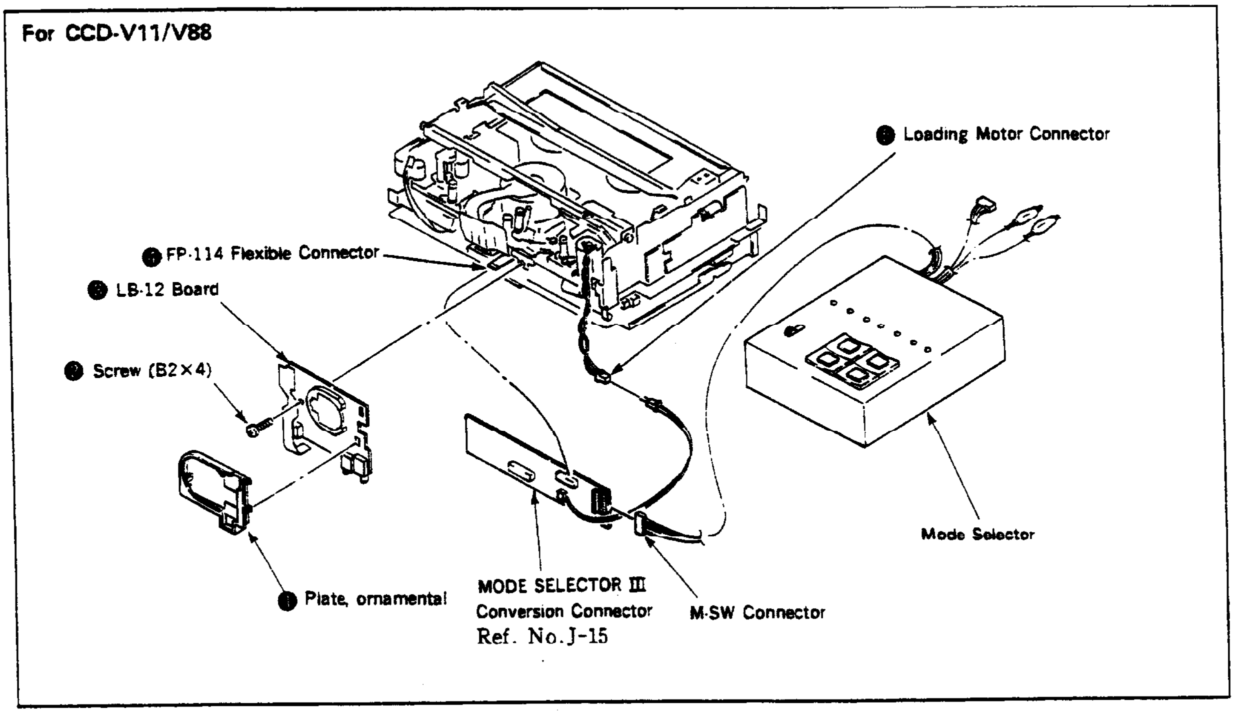
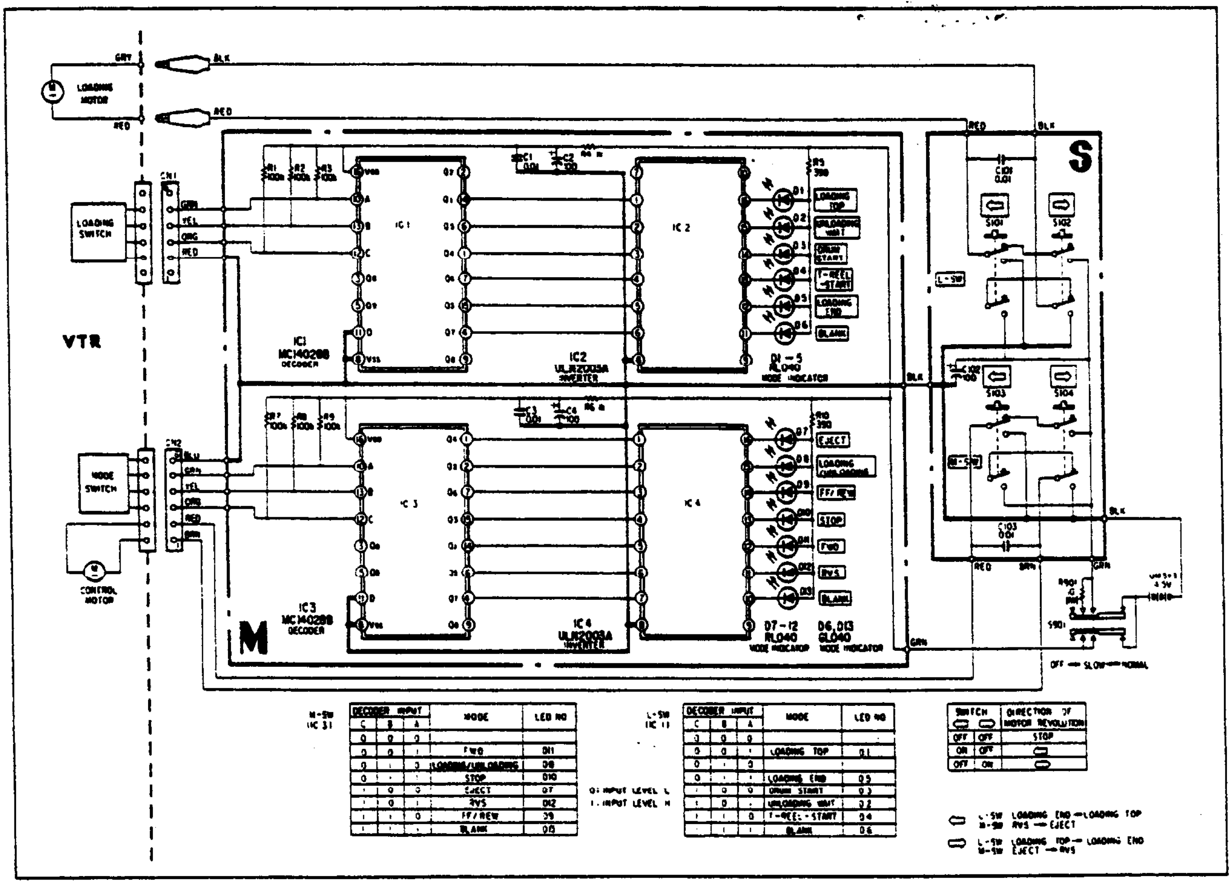

● Loading Motor Connector
● FP-114 Flexible Connector
● LB-12 Board
● Screw (B2×4)
● Plate, ornamental
MODE SELECTOR III
Conversion Connector
Ref. No.J-15
M-SW Connector
Mode Selector

Fig. 6

1-5 MODE SELECTOR SCHEMATIC DIAGRAM


GRY
BLK
LOADING MOTOR
RED
CN1
LOADING SWITCH
GRN
YEL
ORG
RED
VTR
CN2
MODE SWITCH
BLU
CONTROL MOTOR
R1 100k
R2 100k
R3 100k
C1 0.01
C2 100
R4 1k
IC1
IC1 MC14028B DECODER
IC2
IC2 ULN2003A INVERTER
R5 390
D1 LOADING TOP
D2 UNLOADING WAIT
D3 DRUM START
D4 T-REEL START
D5 LOADING END
D6 BLANK
D1-5 RL040 MODE INDICATOR
R7 100k
R8 100k
R9 100k
C3 0.01
C4 100
R6 1k
IC3
IC3 MC14028B DECODER
IC4
IC4 ULN2003A INVERTER
R10 390
D7 EJECT
D8 LOADING UNLOADING
D9 FF/REW
D10 STOP
D11 FWD
D12 RVS
D13 BLANK
D7-12 RL040 MODE INDICATOR
D6, D13 GL040 MODE INDICATOR
M
S
C101 0.01
S101
S102
L-SW
C102 100
S103
S104
M-SW
C103 0.01
RED
BRN
GRN
BLK
R901
S901
OFF — SLOW — NORMAL

M-SW
IC 3

DECODER INPUT			MODE	LED NO
C	B	A		
0	0	0		
0	0	1	FWD	D11
0	1	0	LOADING/UNLOADING	D8
0	1	1	STOP	D10
1	0	0	EJECT	D7
1	0	1	RVS	D12
1	1	0	FF/REW	D9
1	1	1	BLANK	D13

0: INPUT LEVEL L
1: INPUT LEVEL H

L-SW
IC 1

DECODER INPUT			MODE	LED NO
C	B	A		
0	0	0		
0	0	1	LOADING TOP	D1
0	1	0		
0	1	1	LOADING END	D5
1	0	0	DRUM START	D3
1	0	1	UNLOADING WAIT	D2
1	1	0	T-REEL-START	D4
1	1	1	BLANK	D6

SWITCH		DIRECTION OF MOTOR REVOLUTION
⇦	⇨	
OFF	OFF	STOP
ON	OFF	⇦
OFF	ON	⇨

⇦ L-SW LOADING END → LOADING TOP
M-SW RVS → EJECT

⇨ L-SW LOADING TOP → LOADING END
M-SW EJECT → RVS

1-6 MODE SELECTOR PARTS LIST

Ref. No	Part No.	Description			
		CAPACITOR			
C1	1-108-579-00	MILER	0.01μF	50V	
C2	1-123-333-00	ELECT	100μF	24V	
C3	1-108-579-00	MILER	0.01μF	50V	
C4	1-123-333-00	ELECT	100μF	24V	
C101	1-108-579-00	MILER	0.01μF	50V	
C102	1-123-333-00	ELECT	100μF	24V	
C103	1-108-579-00	MILER	0.01μF	50V	
		DIODE			
D1	8-719-812-31	DIODE TLR123			
D2	8-719-812-31	DIODE TLR123			
D3	8-719-812-31	DIODE TLR123			
D4	8-719-812-31	DIODE TLR123			
D5	8-719-812-31	DIODE TLR123			
D6	8-719-812-33	DIODE TLG123A			
D7	8-719-812-31	DIODE TLR123			
D8	8-719-812-31	DIODE TLR123			
D9	8-719-812-31	DIODE TLR123			
D10	8-719-812-31	DIODE TLR123			
D11	8-719-812-31	DIODE TLR123			
D12	8-719-812-31	DIODE TLR123			
D13	8-719-812-33	DIODE TLG123A			

Ref. No	Part No.	Description			
		IC			
IC1	8-752-240-28	IC	TC4028BP		
IC2	8-752-120-03	IC	μPA2003C		
IC3	8-759-240-28	IC	TC4028BP		
IC4	8-759-120-03	IC	μPA2003C		
		RESISTOR			
R1	1-247-179-00	CARBON	100K	1/4W	
R2	1-247-179-00	CARBON	100K	1/4W	
R3	1-247-179-00	CARBON	100K	1/4W	
R4	1-247-131-00	CARBON	1K	1/4W	
R5	1-247-121-00	CARBON	390	1/4W	
R6	1-247-131-00	CARBON	1K	1/4W	
R7	1-247-179-00	CARBON	100K	1/4W	
R8	1-247-179-00	CARBON	100K	1/4W	
R9	1-247-179-00	CARBON	100K	1/4W	
R10	1-247-121-00	CARBON	390	1/4W	
R901	1-214-594-00	METAL	10	1W	

2. PERIODIC CHECK AND MAINTENANCE

- Carry out the following maintenance and periodic checks in order not only to fully exhibit the functions and performance of the set, but also for the equipment and tape. After repairing, service the set as follows, regarless of the length of use.

2-1 CLEANING OF ROTARY DRUM ASSEMBLY

1) Gently apply chamois cloth (Ref. No. J-2) soaked in cleaning liquid (Ref. No. J-1) to the rotary drum assembly.
   Clean it by rotating the upper rotary drum assembly slowly counterclockwise by hand.

Note : Do not rotate the motor by power or rotate the upper rotary drum assembly clockwise by hand. Also, the head tip is highly likely to be damaged if the chamois cloth is moved in a pependicular direction to the it. Make sure to follow the instructions above for cleaning the rotary drum assembly.

2-2 CLEANING OF TAPE PATH (Fig. 7)

1) In the EJECT mode, clean the tape running system (TG-1, -2, -3, -4, -5, -6, -7, -8, -9, -10, -11, pinch roller, and capstan shaft) and the lower drum, using a superfine applicator (Ref. No. J-3) soaked in the cleaning liquid.

Note : Note that no oil or grease of each link mechanism adheres to the superfine applicator (Ref. No. J-3).

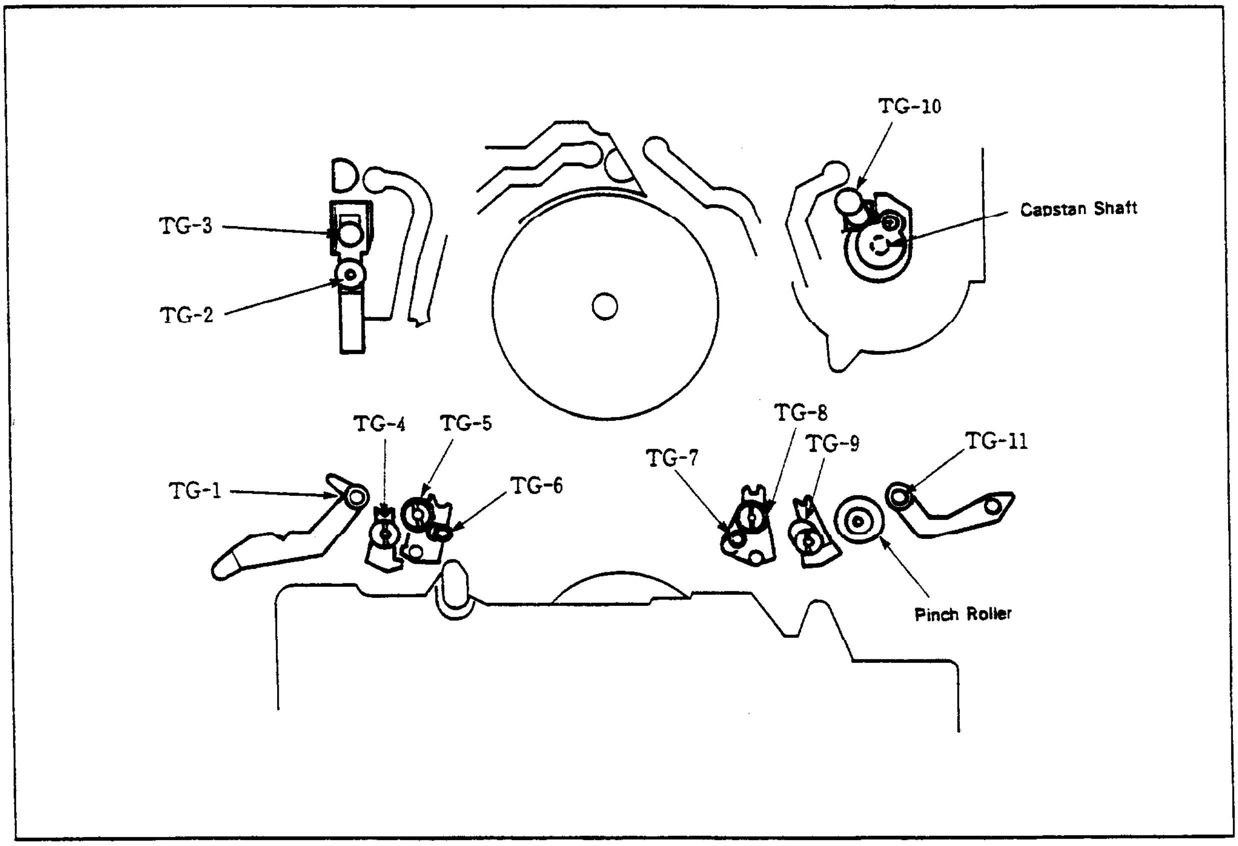


Fig. 7

2-3 PERIODIC CHECK ITEMS

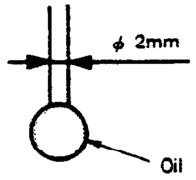
Location of Maintenance and check		Hours of Use (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
Tape trans-portion System	Cleaning of tape path surface	○	○	○	○	○	○	○	○	○	○	Be careful of oil
	Cleaning and degaussing of rotary assembly	○	○	○	○	○	○	○	○	○	○	Be careful of oil
Driving System	Relay belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-728-212-01
	Capstan shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Be adsolutely careful not to get oil on the tape path surface.
	Relay pulley sheft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	1-541-607-11
Performance Confirmation	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD. RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○ : Cleaning ◎ : Oil ☆ : Confirmation

Note : When overhauling, refer to the items above to replace parts.

Note : Concerning oil

- Be sure to use specified oil. (If you use oil with different visicosity, etc., it may cause troubles.)
  Oil : Part No. 7-661-018-18 (Mitsubishi Diamond Oil Hydrofluid NT-68)
- When lubricating bearings, be sure use oil free from dust, etc. (If you use oil with dust, etc. contained, it may cause bearings to be worn out or seized.)
- A drip of oil refers to an amount attached to the tip of a ϕ 2mm stick shown in the right figure.

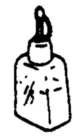


2-4 Service jigs list

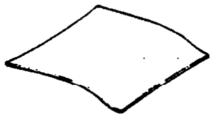
Ref. No.	Neme	Part No.	Fixture No.	Usage and Others
J-1	Cleasing fluid	Y-2031-001-0	—	
J-2	Cleasing cloth	2-034-697-00	—	
J-3	Super fine applicator (Made by NIPPON APPLICATOR, P752D)		—	
J-4	Head degausser	Widely available	—	
J-5	Small mirror for adjustment Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape NTSC (WR5-1N) PAL (WR5-1C)	8-967-995-01 8-967-995-06		Tape path
J-7	Dial tension gauge	J-6080-827-A		Various torque measurement
J-8	Tension measurement reel	J-6080-831-A		With ϕ30 tape
J-9	FWD and RVS winding torque cassette	J-6080-824-A	GD-2086	
J-10	Drum screwdriver (Hexagonal wrench screwdriver)	7-700-766-01		
J-11	Screwdriver for tape path	J-6082-026-A		For tape guide adjustment
J-12	Mode selector III panel	J-6082-023-A		
J-13	Mode selector	J-6080-825-A		For all models
J-14	Mode selector III conversion connector	J-6082-021-A		

Other equipment
- Oscilloscope
- Analog tester (20kΩ)

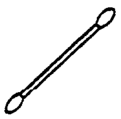
J-1



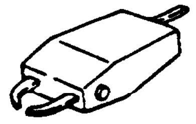
J-2



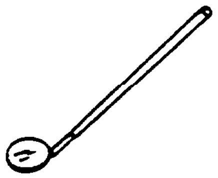
J-3



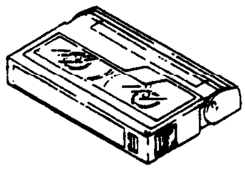
J-4



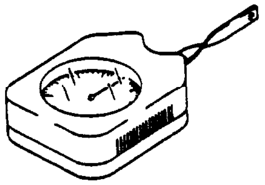
J-5



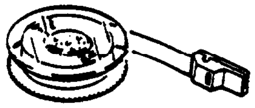
J-6



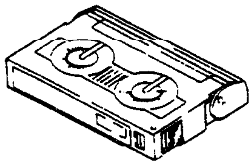
J-7



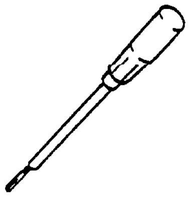
J-8



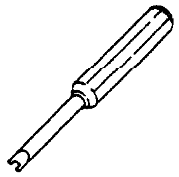
J-9



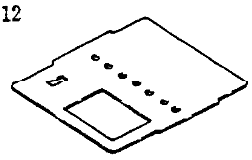
J-10



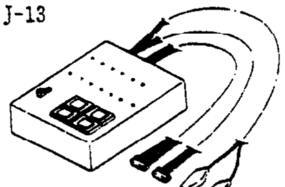
J-11



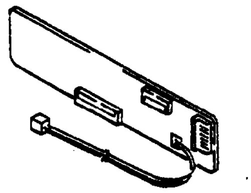
J-12



J-13



J-14



3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

Note : Use the mode selector (Ref. No. J-14) for the following mechanical checks, adjustments and replacements.

Note : The modes in ☐ are those set by pressing the mode selector buttons.

3-1 LED BASE (Fig. 8)

1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder assembly.
3) As shown in Fig. A, rotate the LED in a direction of the arrow Ⓐ and remove it in a direction of the arrow Ⓑ.
4) Remove the three screws ❶, ❷ and ❸.
5) Lifting the LED base ❹, remove it by pushing it in a direction of the arrow Ⓒ.

Note : Dismount and remount the LED base carefully, because its holder is easily deformed.

2. Mounting

1) Select the USE mode.
2) Put the claw ❺ of the LED base ❹ in the notch ❼ of the LS chassis without catching the LED in between. Next, fit to the dowels ❻ at 2 places.
3) Mount and tighten the screws ❶, ❷ and ❸ in that order.
4) As shown in Fig. B, set the LED in a direction of the arrow Ⓐ and rotate it in a direction of the arrow Ⓑ to fix.
5) As shown in Fig. C, bend a flexible boord and put it in the holder.

Note : In the step2), make sure that the barring ❽ of the arm assy, gear can appears in the hole of the LED base. (Fig. D)

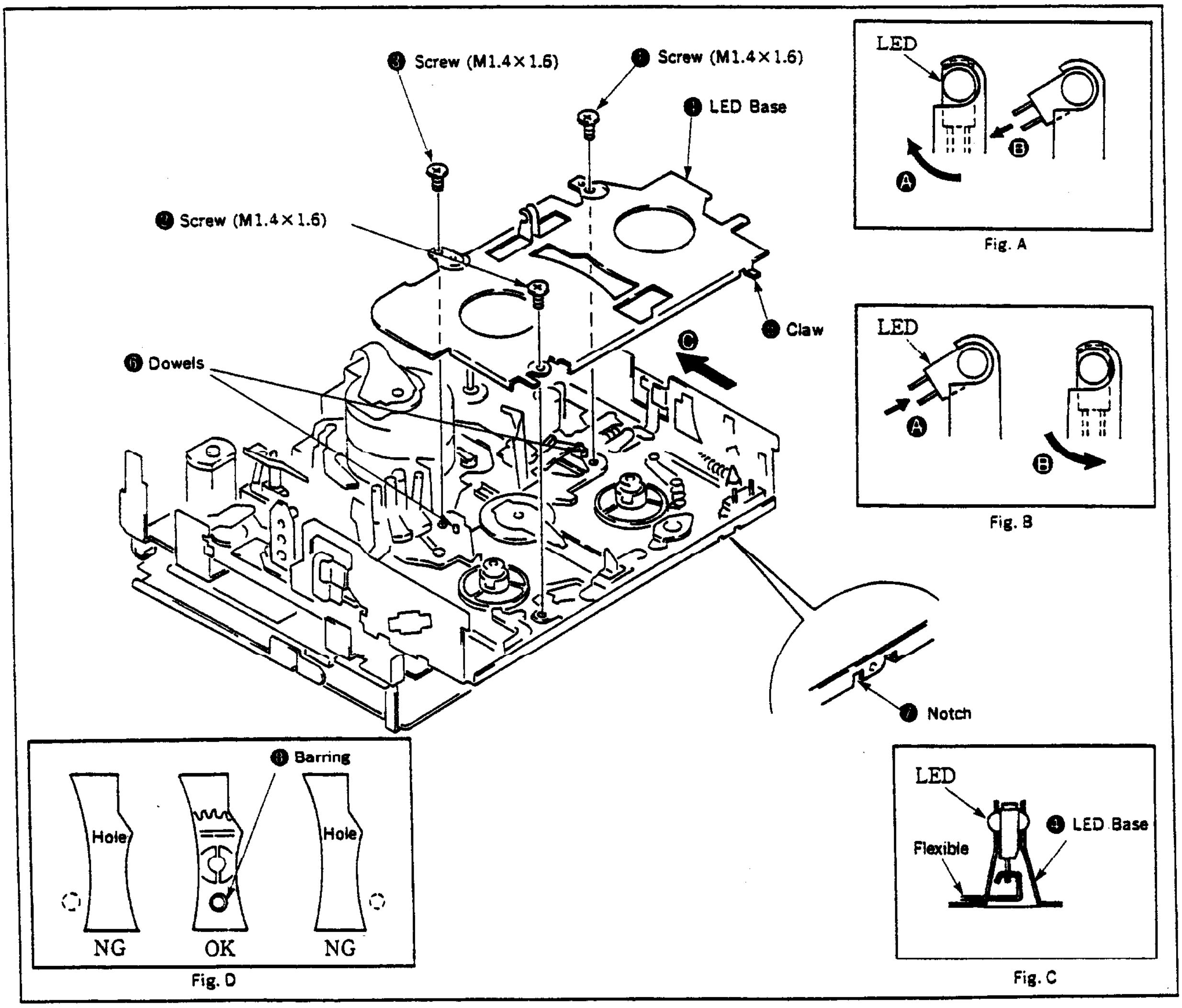

❸ Screw (M1.4×1.6)
❶ Screw (M1.4×1.6)
❹ LED Base
❷ Screw (M1.4×1.6)
❺ Claw
Ⓒ
❻ Dowels
❼ Notch
LED
Ⓐ
Ⓑ
Fig. A
LED
Ⓐ
Ⓑ
Fig. B
❽ Barring
Hole
Hole
NG
OK
NG
Fig. D
LED
❹ LED Base
Flexible
Fig. C

Fig. 8

3-2 RL BASE ASSEMBLY, RETAINER (Fig. 9)

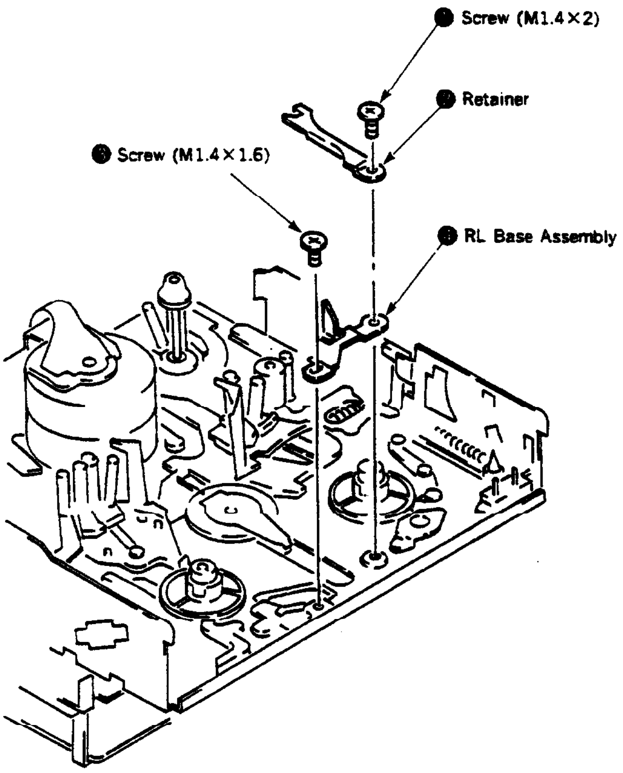
1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder assemlby.
3) Referring to 3-1, remove the LED base.
4) Remove the screw ●, and then, retainer ●.
5) Remove the screw ●, and then, RL base assembly ●.

2. Mounting

1) Select the USE mode.
2) With the screw ●, mount the RL base assembly ● to the LS chassis.
3) With the screw ● fix the retainer ● to the RL base assembly ●.

   When this is done, align the bump part ⁕ of the retainer ● with the bump part ⁕ of the guide rail T. (Fig. A)
4) Referring to 3-1, mount the LED base.
5) Referring to 1-1, mount the cassette compartment holder assembly.


● Screw (M1.4×2)
● Retainer
● Screw (M1.4×1.6)
● RL Base Assembly

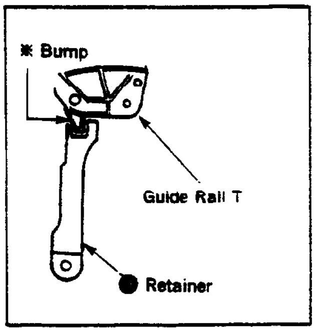

⁕ Bump
Guide Rail T
● Retainer

Fig. A

Fig. 9

3-3 TABLE ASSY, REEL, SUPPLY (Fig. 10)

1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder assembly.
3) Referring to 3-1, remove the LED base.
4) As shown in Fig. A, making use of slackness of the tension regulator string ● in the USE mode, remove the string out of the groove of the table assy, reel, supply ●. When this is done, be careful not to bend the tension regulator string ● and the S soft arm ● must be moved in a direction of the arrow Ⓑ.
5) Remove the table assy, reel, supply ●.

Note : Dismount and remount the table assy, reel, supply ●, holding the reel claw ✻.

2. Mounting

1) Select the USE mode.
2) As shown in Fig. B, move the S soft arm ● in a direction of the arrow Ⓑ.
3) Avoiding the tension regulator string ●, mount the table assy, reel, supply ● to the shaft ●.
4) Put the tension regulator string ● in the groove of the table assy, reel, supply ● and fit it properly by turning the table assy, reel, supply ●.
5) Referring to 3-1, mount the LED base.
6) Referring to 1-1, mount the cassette compartment holder assembly.

Note : Do not touch the tension regulator string ● with naked hand. Also, be careful of adhesion of grease, etc.

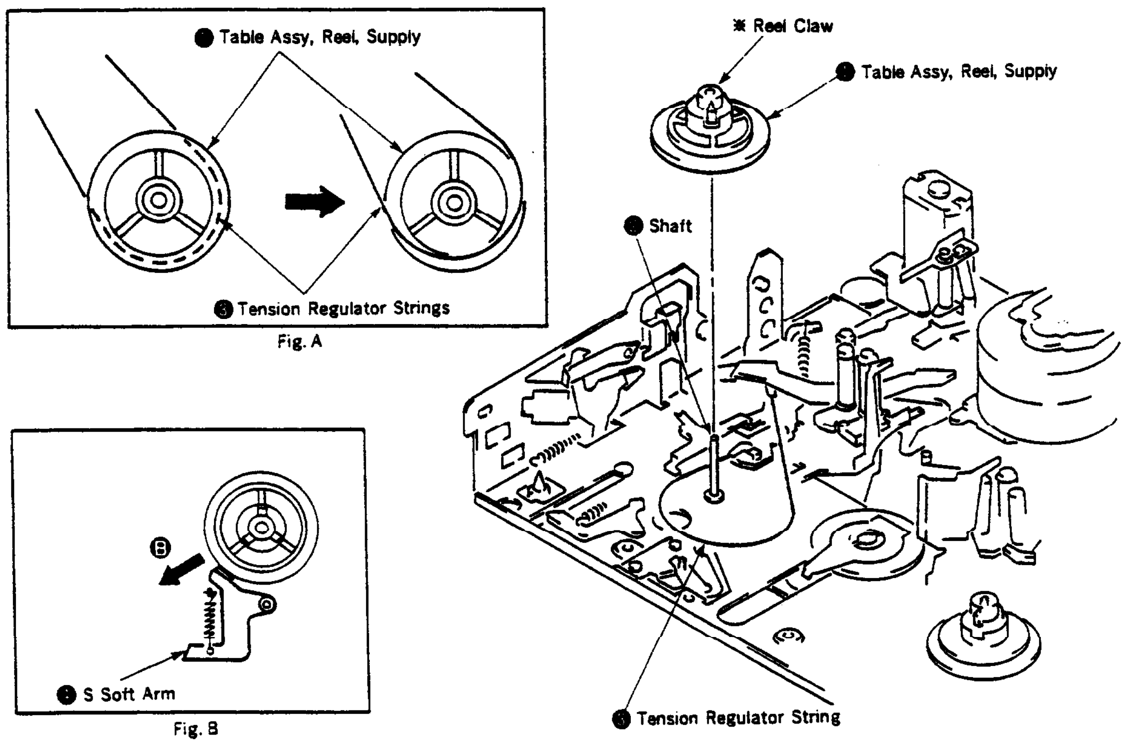

● Table Assy, Reel, Supply
● Tension Regulator Strings
Ⓑ
● S Soft Arm
✻ Reel Claw
● Table Assy, Reel, Supply
● Shaft
● Tension Regulator String

Fig. A

Fig. B

Fig. 10

3-4 TABLE ASSY, REEL, TAKE-UP (Fig. 11)

1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder assembly.
3) Referring to 3-1, remove the LED base.
4) Referring to 3-2, remove the retainer.
5) Dispace the T ratchet ❶ in a direction of the arrowⒶ.
6) With the claw (T ratchet head) of the T ratchet ❶ moved in a direction of the arrowⒷ, remove the Table assy, reel, take-up ❷.

Note : Dismount and remount the Table assy, reel, take-up ❷, holding the reel claw ⁕.

2. Mounting

1) Select the USE mode.
2) With the claw (T ratchet head) of the T ratchet ❶ moved in an arrow direction, mount the Table assy, reel, take-up ❷ to the shaft ❸.
3) Referring to 3-2, mount the retainer.
4) Referring to 3-1, mount the LED base.
5) Referring to 1-1, mount the cassette compartment holder assembly.

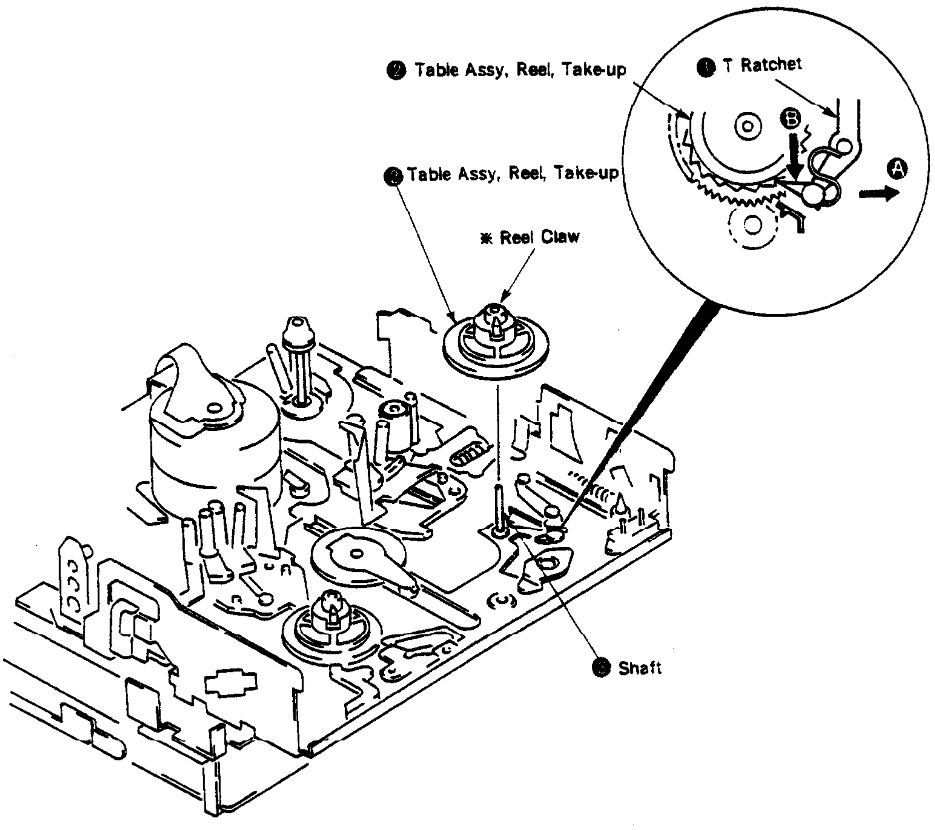


Fig. 11

3-5 ONEWAY CLUTCH ASSEMBLY (Fig. 12)

1. Removal

1) Select the USE mode.
2) Referring to the cassette compartment holder assembly.
3) Referring to 3-1, remove the LED base.
4) Remove the screw ●, and then, oneway clutch assembly ●.

2. Mounting

1) Select the USE mode.
2) Mount the oneway clutch assembly ● to the LS chassis and fix with the screw ●.
3) Referring 3-1, mount the LED base.
4) Referring to 1-1, mount the cassette compartment holder assembly.

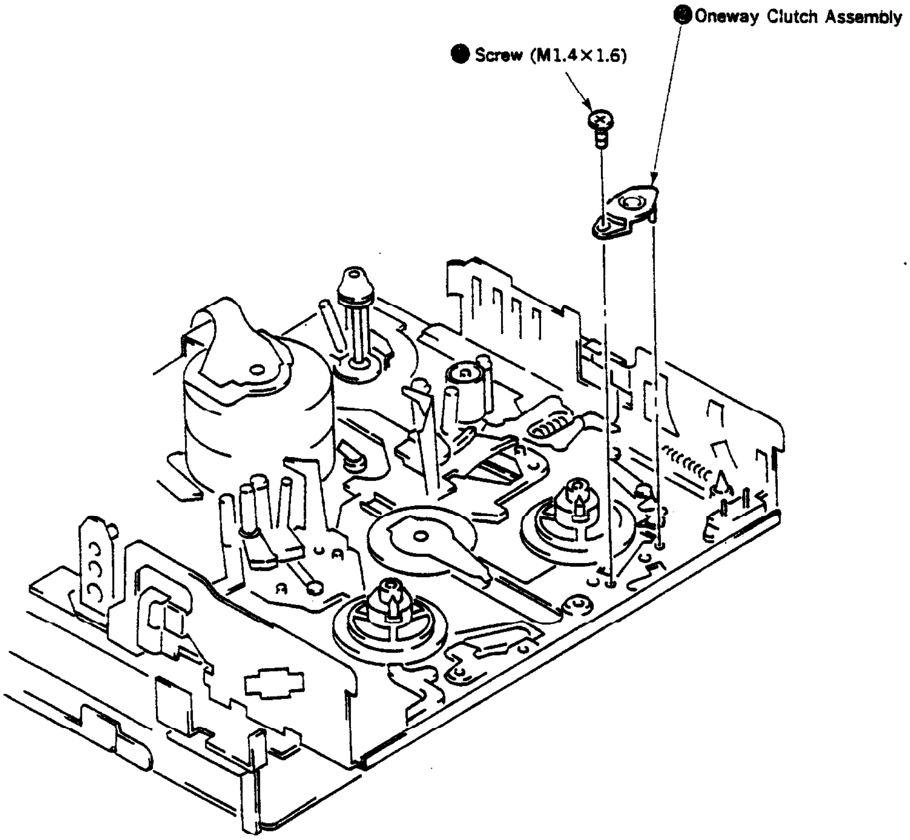


Fig. 12

3-6 S SOFT ARM ASSEMBLY (Fig. 13)

1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder assembly.
3) Referring to 3-1, remove the LED base.
4) Rerove the lock washer ●, and then, the spring, tension ●.
5) Remove the S soft arm assembly ● by rotating it in an arrow direction (until the hook ● comes off the LS chassis).

2. Removal

1) Select the USE mode.
2 As shoms in Fig. A, apply a quarter drip of oil to the arrowindicated part of the shaft ●.
3) Mount the S soft arm assembly ● to the shaft ●, rotating it in as arrow direction. (Be careful not to bend the hook ●.)
4) Hook the spring, tension 2 onto the claw and fix it with lock washer 1.
5) Referring to 3-1, mount the LED base.
6) Referring to 1-1, mount the cassette compartment holder assembly.

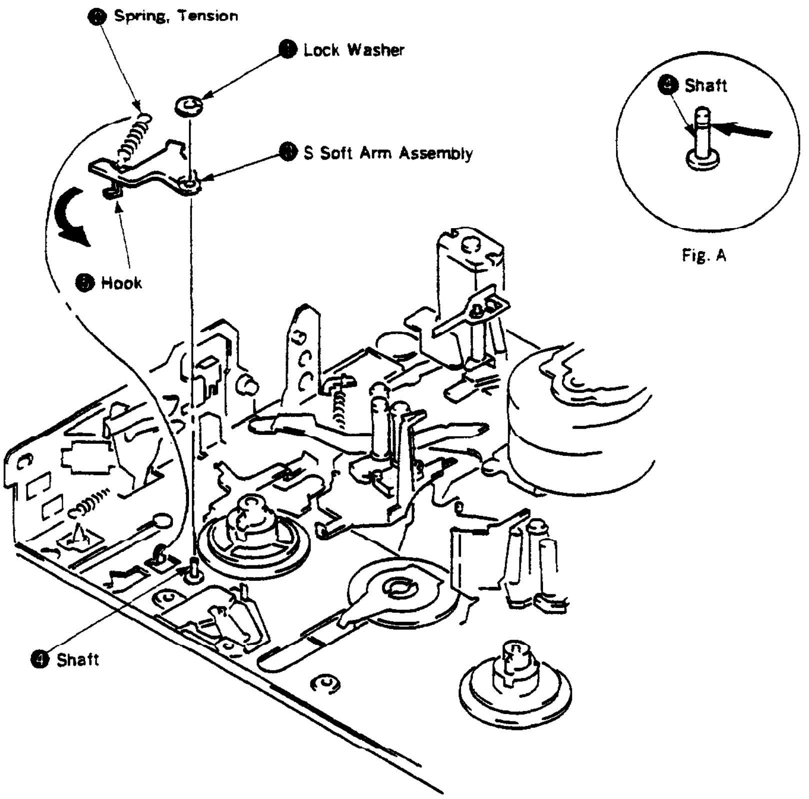


Fig. 13

3-7 LS CHASSIS ASSEMBLY (Fig. 14)

1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder.
3) Referring to 3-1, remove the LED base.
4) Referring to 3-2, remove the RL base assembly and retainer.
5) Remove the lock washer ❶, and then, arm assy gear ❷.
6) Select the Q, REW mode.
7) Remove the flexible rotary shaft ❸, and then, the flexible connector ❹.
8) Remove the E retaining ring ❺ and three screws ❻.
9) Remove the LS chassis assembly ❼ in a direction of the arrow Ⓓ.

2. Mounting

1) As shown in Fig. A, apply Molyton grease to the arrow-indicated part of the LS chassis assembly ❼.
2) Unload in the RDY mode. Start docking in the Q, REW mode after first GL. When docking the mechanical chassis and LS chassis assembly ❼, it is necessary to place the following parts at specified positions.
3) Put the pin ●of the pinch arm assembly ●into the left side of the pinch press arm assembly●. (Fig.19)
4) Move the TG-1 arm assembly●in a direction of the arrow Ⓐ to put the pin ●into the concave of the arm assembly ●. (Fig. 17)
5) put the pin●of the S ratchet●into the right side the of the arm assembly●. (Fig. 17)

Simultaneously performing the operations above, push the roller of the guide lock arm ● With the arm arc portion of the guide arm T assembly● (Fig. 15) to push the LS chassis assembly ❼ in a direction of the arrowⒺ, and at the same time, engage the claws of the guide rail base 1●, guide rail base 2●and guide rail base3●with those of the guide rail S● and guide rail T●. (Fig. 16)

Then, align the shafts ❾ of the mechanical chassis With the four long joints of the LS chassis assembly ❼, and put the LS pin●of the LS arm assembly●in the groove of the LS cam plate●. (Fig.18)

Note : Before docking, confirm that both EJ arm and LS arm are deeply inserted into the shafts. (If not properly fit, the set does not function even if the LS chassis is docked.

6) Mount the E retaining ring ❺ and three screws ❻.
7) Mount the flexible rotary shaft ❸ and flexible connector ❹.
8) Select the USE mode.
9) Mount the arm assy gear ❷ and fix with the lock washer ❶.
10) Referring to 3-2, mount the RL base assembly and retainer.
11) Referring to 3-1, mount the LED base.
12) Referring to 1-1, mount the cassette compartment holder assembly.

Note : Using the mode selector, confirm that loading and unloading are performed smoothly.

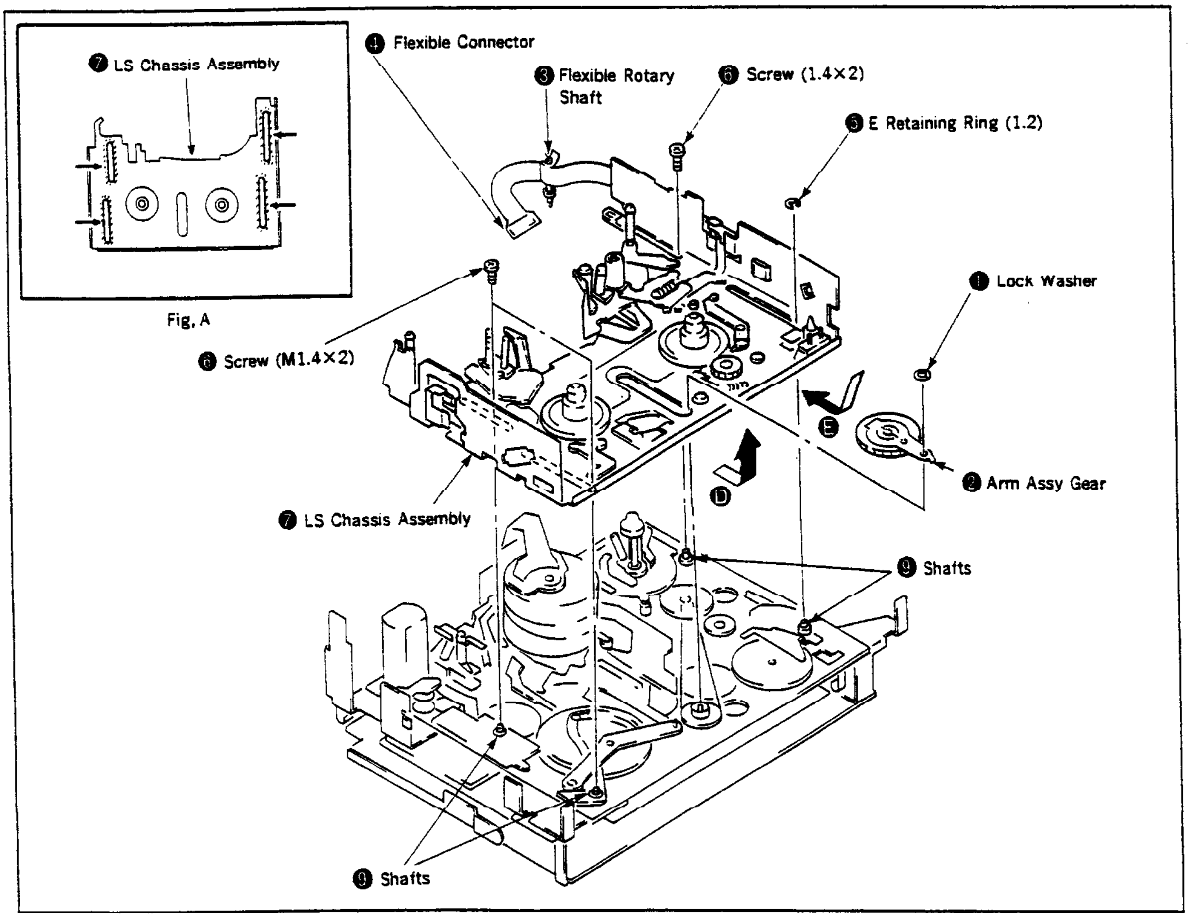


Fig. 14

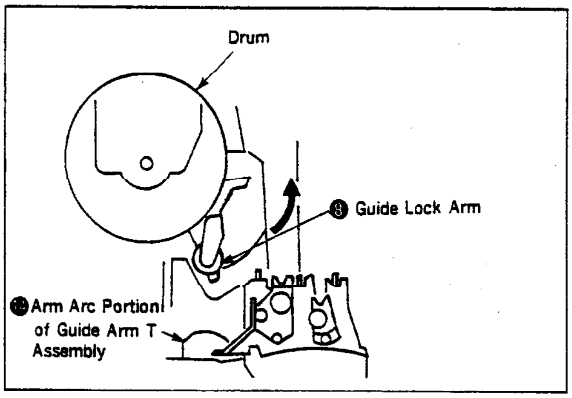

Drum
⑧ Guide Lock Arm
Arm Arc Portion of Guide Arm T Assembly

Fig. 15

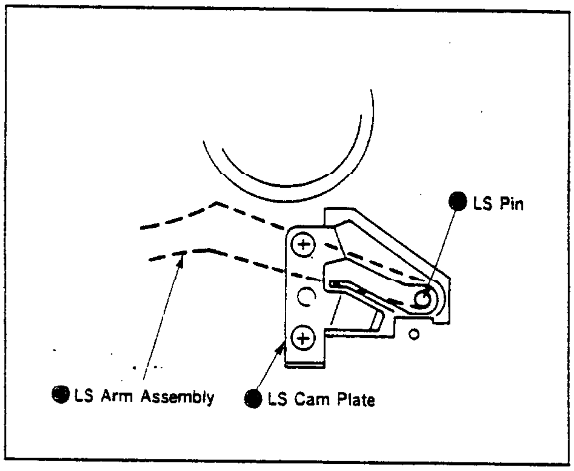

LS Pin
LS Arm Assembly
LS Cam Plate

Fig. 18

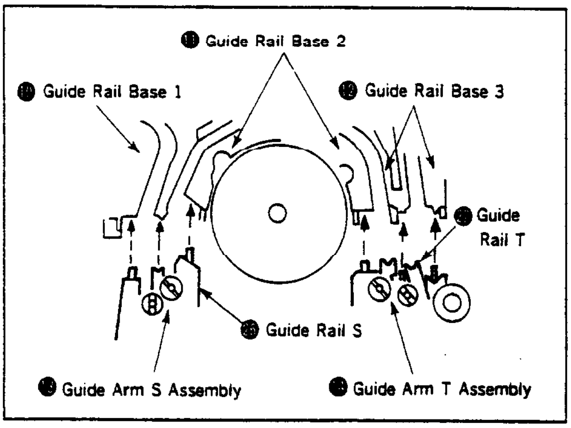

⑪ Guide Rail Base 2
⑩ Guide Rail Base 1
⑫ Guide Rail Base 3
Guide Rail T
Guide Rail S
Guide Arm S Assembly
Guide Arm T Assembly

Fig. 16

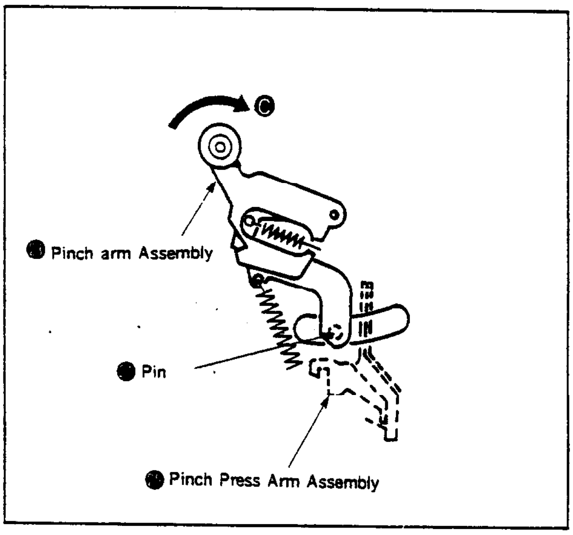

Ⓒ
Pinch arm Assembly
Pin
Pinch Press Arm Assembly

Fig. 19

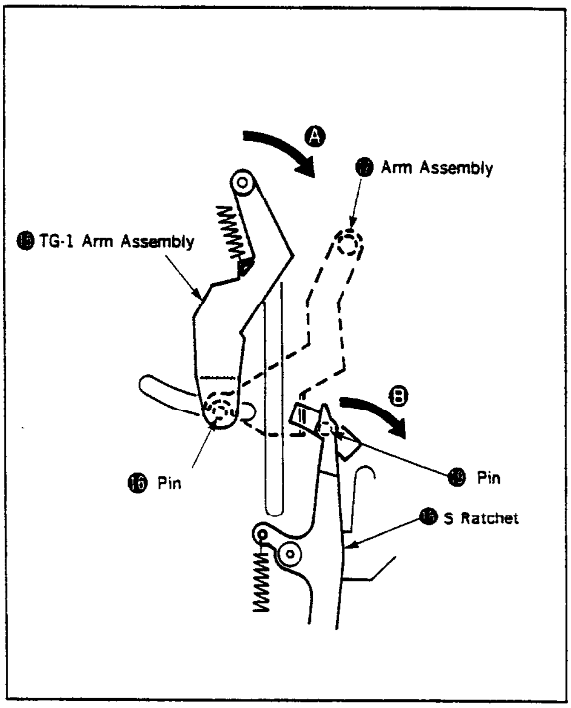

Ⓐ
Arm Assembly
TG-1 Arm Assembly
Ⓑ
⑯ Pin
Pin
S Ratchet

Fig. 17

-8 PINCH ARM ASSEMBLY (Fig. 20)

. Removal

) Referring to 1-1, remove the cassette compartment holder assembly.

) Referring to 3-7, remove the LS chassis assembly.

) Remove the lock washer ❷ from the back of the LS chassis assembly ❶.

) Remove the spring, tension ❸, and then, pinch arm assembly ❹.

2. Mounting

1) As shown in Fig. A, apply oil to the hole of the boss ❺ over one third of a drip up to half a drip.
2) put the rotation center of the pinch arm assembly in the boss ❺ hole, and the pin ❻ in the long hole.
3) Hook the spring, tension ❸ onto the upper groove of the pinch return spring shaft ❼.
4) Mount the lock washer ❷ from the back of the LS chassis assembly ❶.
5) Referring to 3-7, mount the LS chassis assembly.
6) Referring to 1-1, mount the cassette compartment holder assembly.

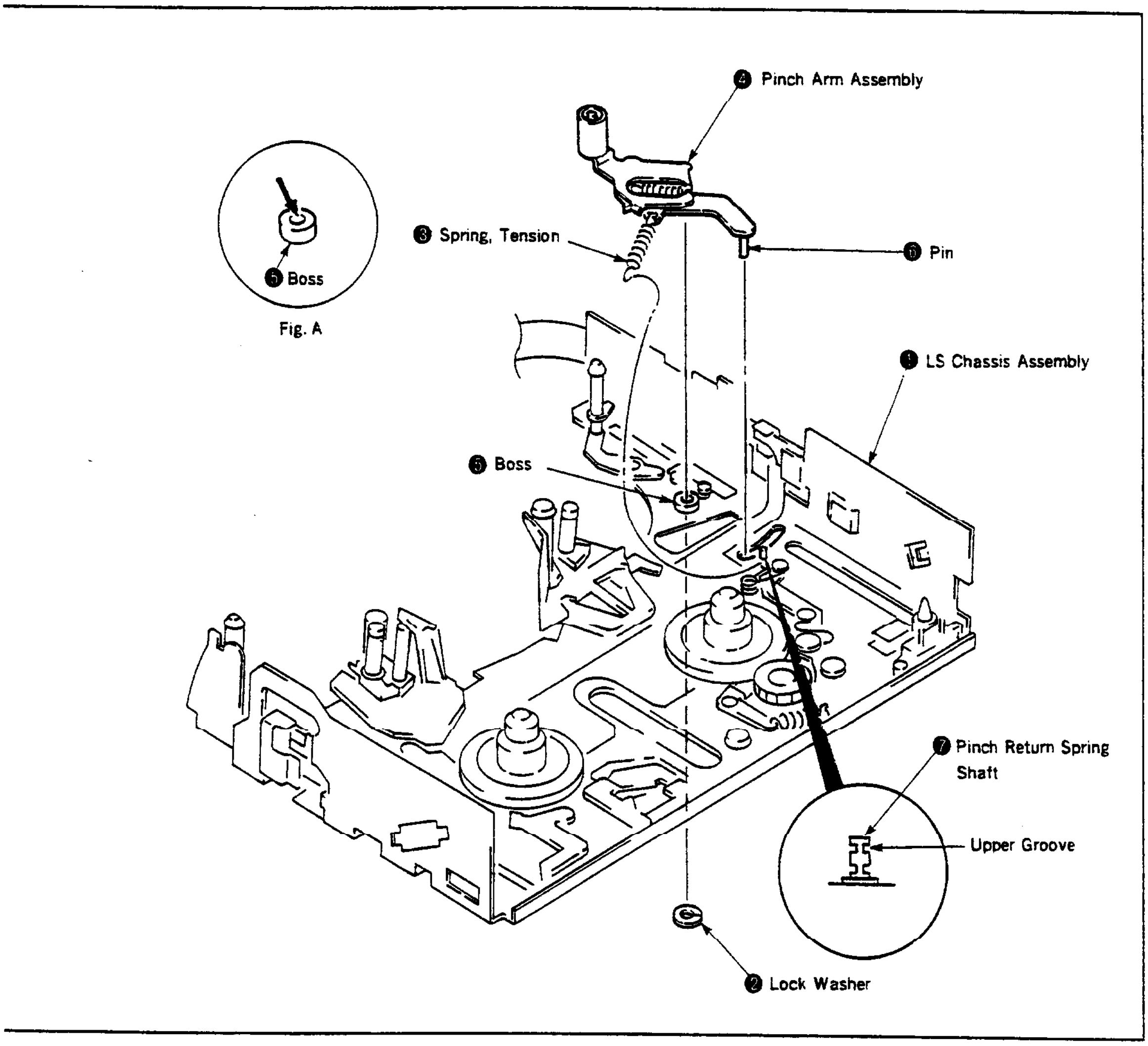

❹ Pinch Arm Assembly
❺ Boss
Fig. A
❸ Spring, Tension
❻ Pin
❶ LS Chassis Assembly
❺ Boss
❼ Pinch Return Spring Shaft
Upper Groove
❷ Lock Washer

Fig. 20

3-9 TG-11 ARM ASSEMBLY (Fig. 21)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis assembly.
3) Remove the lock washer ❷ from the back of the LS chassis assembly ❶.
4) Remove the TG-11 arm assembly ❸ and spring, torsion ❹.

Note : Be careful not to deform the TG-11 arm.

2. Mounting

1) As shown in Fig. A, apply oil to a boss hole over one third of a drip up a half a drip.
2) As shown in Fig. B, put the longer arm of the spring, torsion ❹ between the pinch arm boss ❺ and cam slider shaft ❽ of the LS chassis. Next, Hook the shorter arm of the spring, torsion ❹ around the pin ❻ of the TG-11 arm assembly ❸, rotate the TG-11 arm assembly and fix with the lock washer ❷. When this is done, see to it that the pin ❻ of the TG-11 arm assembly ❸ is located to the left side of the cam slider ❾ as shown in Fig. C.
3) Referring to 3-7, mount the LS chassis.
4) Referring to 1-1, mount the cassette compartment holder.

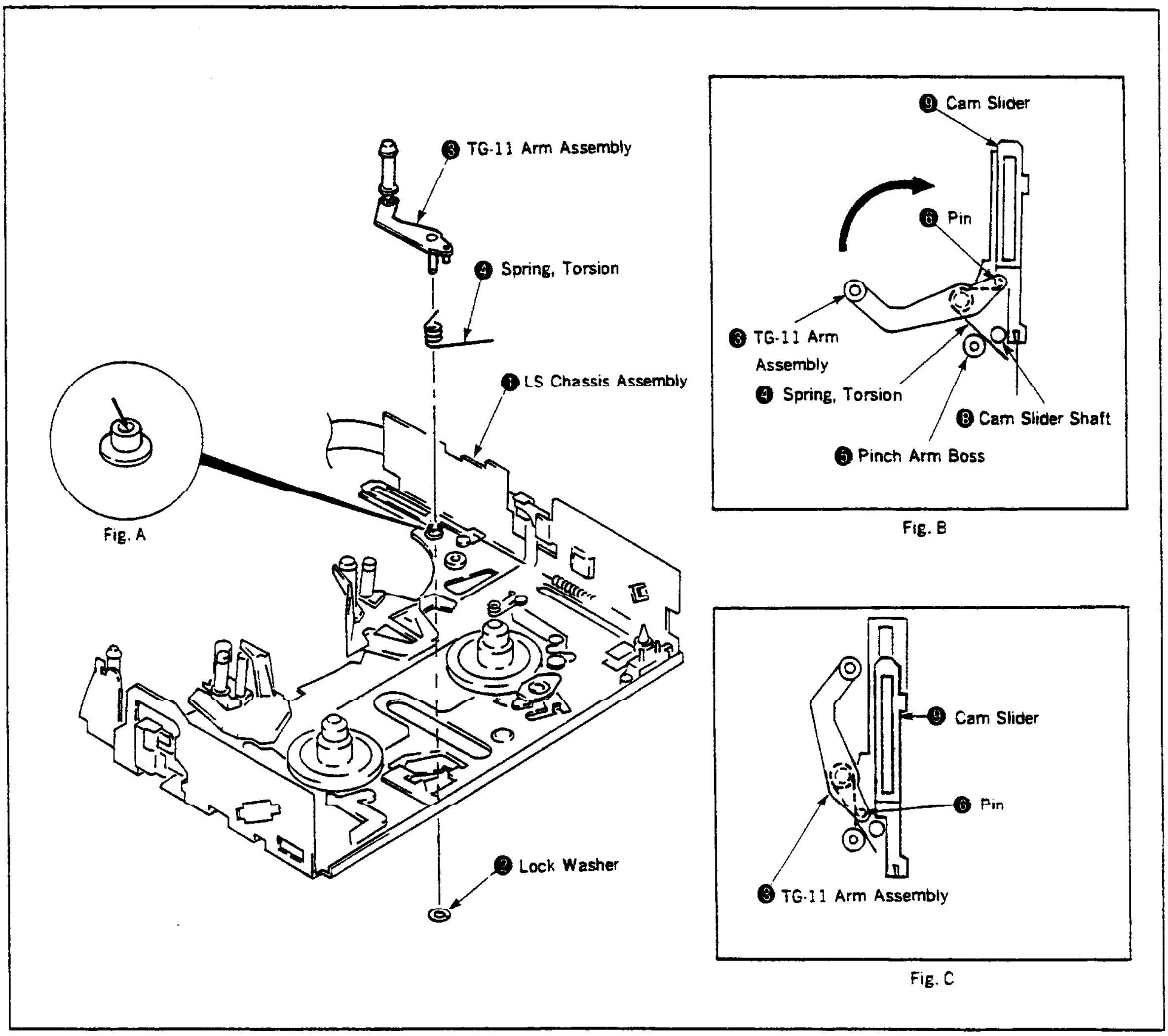

❸ TG-11 Arm Assembly
❹ Spring, Torsion
❶ LS Chassis Assembly
❷ Lock Washer
❾ Cam Slider
❻ Pin
❸ TG-11 Arm Assembly
❹ Spring, Torsion
❽ Cam Slider Shaft
❺ Pinch Arm Boss
❾ Cam Slider
❻ Pin
❸ TG-11 Arm Assembly

Fig. A

Fig. B

Fig. C

Fig. 21

3-10 TG-1 ARM ASSEMBLY (Fig. 22)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis.
3) Referring to 3-3, remove the table assy, reel, supply.
4) Remove the lock washer ❷ from the back of the LS chassis assembly ❶.
5) Remove the spring, tension ❸. Remove the string joint ❹ from the dowel ❺ of the TG-1 adjustment block ❾ by rotating it in a direction of the arrow Ⓐ as shown in Fig. C.
6) Remove the TG-1 arm assembly ❻.

Note : Dismount and remount the string joint ❹ carefully not to deform it.

2. Mounting

1) As shown in Fig. A, apply oil to the hole of the boss ❼ over one third of a drip up to half a drip.
2) As shown in Fig. C, mount the string joint ❹ to the TG-1 adjustment block ❾ in the opposite direction of the arrow Ⓐ.
3) Mount the TG-1 arm assembly ❻ to the boss ❼ in such a manner not to touch the guide and insert the pin ❽ into the long hole.
4) Hook the spring, tension ❸ onto the position shown in Fig. B.
5) Mount the lock washer ❷ from the back of the LS chassis assembly ❶.
6) Referring to 3-3, mount the table assy, reel, supply.
7) Referring to 3-7, mount the LS chassis assembly.
8) Referring to 1-1, mount the cassette compartment holder assembly.

Note : Referring to 3-27, adjust a tension regulator position.

Note : Referring to 3-28. adjust a FWD back tension.

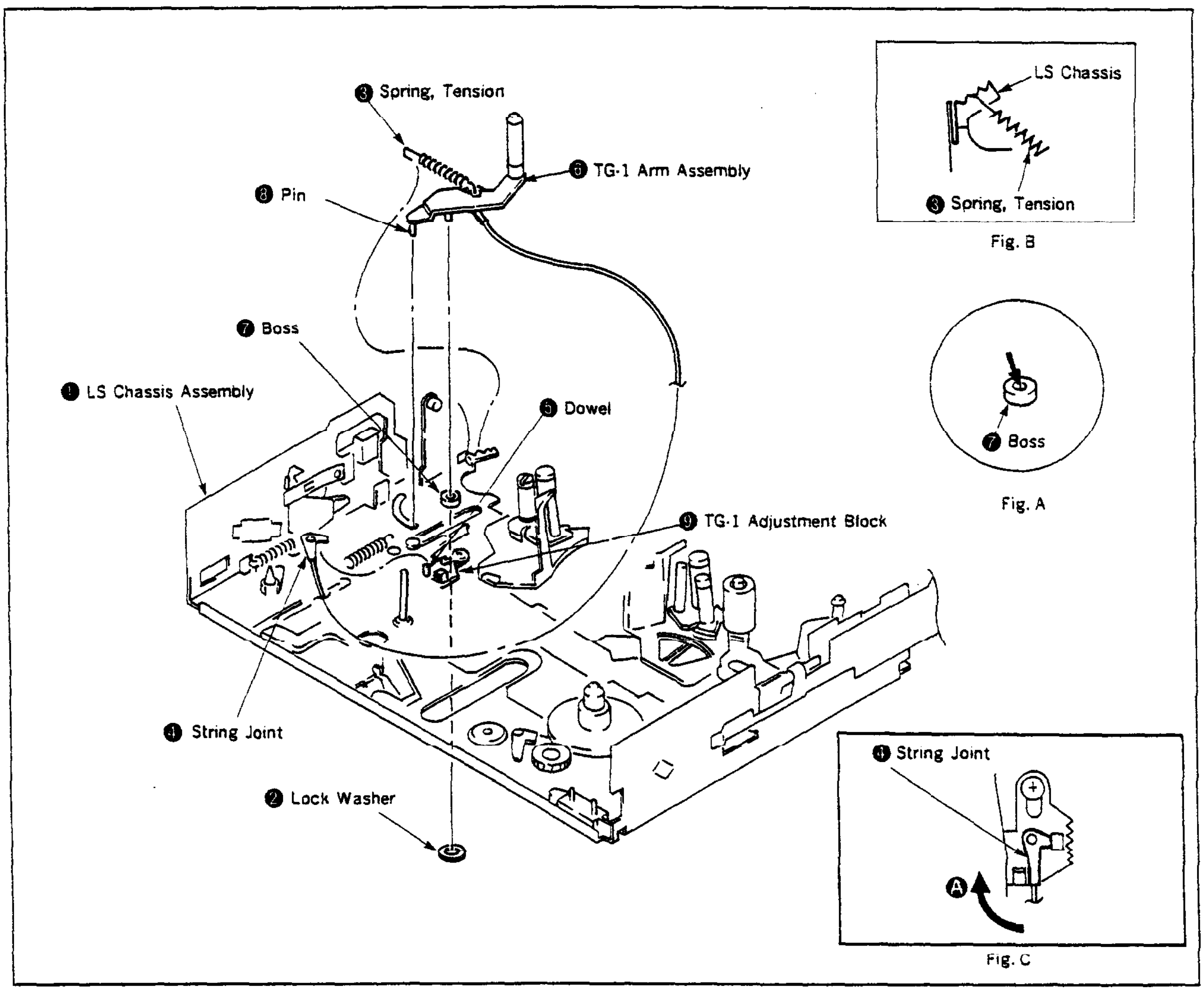

❸ Spring, Tension
❻ TG-1 Arm Assembly
❽ Pin
❼ Boss
❶ LS Chassis Assembly
❺ Dowel
❾ TG-1 Adjustment Block
❹ String Joint
❷ Lock Washer
LS Chassis
❸ Spring, Tension
❼ Boss
❹ String Joint
Ⓐ

Fig. B

Fig. A

Fig. C

Fig. 22

3-11 STRING JOINT (Fig. 23)

1. Removal

1) Referring to 3-10, remove the TG-1 arm assembly ❶.
2) Remove the joint holder ❷, and then, string assembly ❸.

2. Mounting

1) Put the dowel ❹ of the TG-1 arm assembly ❶ into the hole of the string assembly ❸ and mount the joint holder ❷. (Apply screw lock between the joint holder and TG-1 arm assembly.)
2) Referring to 3-10, mount the TG-1 arm assembly ❶.

Note : Be careful not to bend the string assembly ❸.

Note : Do not touch the guide ✻.

Note : The joint holder ❷, which was removed once, must not be used again.

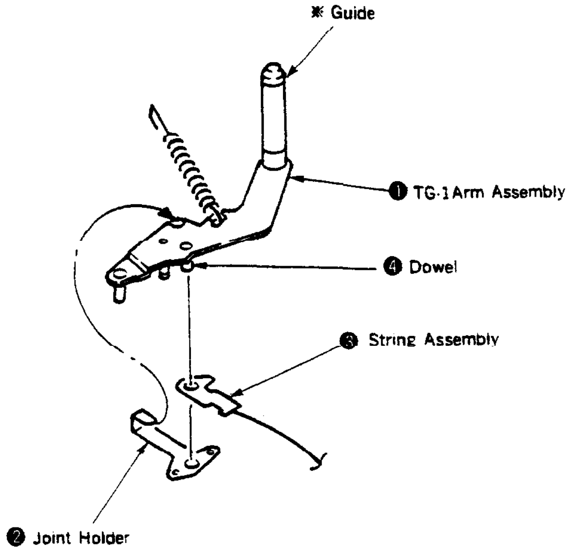

✻ Guide
❶ TG-1 Arm Assembly
❹ Dowel
❸ String Assembly
❷ Joint Holder

Fig. 23

3-12 GUIDE ARM T ASSEMBLY, GUIDE ARM S ASSEMBLY

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove *the LS chassis assembly.*
3) Rotate the guide arm T assembly ❶ and guide arm S assembly in arrow directions respectively, align their shafts ❸ with the holes as shown in Fig. A, and remove them. (Fig. 24)

Note : Do not touch the guide ✱. (Fig. 25 and Fig. 26)

2. Mounting

1) After inserting the guide arn T and S assemblies in the reverse order of removal, rotate them in the opposite directions of the *arrows respectively.*
2) Fit the TG-7 base assembly ❺ and TG-9 base assembly ❻ in the grooves of the guide rail T ❹. (Fig. 25)
3) Put the shaft ❸ flange in the long groove of the guide rail S ❽, and fit the TG-4 base assembly ❾ and TG-6 base assembly ❿ into the right and left grooves of the guide rail S ❽ respectively.

   When this is done, see to it that the flat spring of the TG-6 base assembly❿ is located below the guide rail S ❽ as shown in Fig. B. (Fig.26)
4) Referring to 3-7, mount the LS chassis assembly.
5) Referring to 1-1, mount the cassette compartment holder assembly.

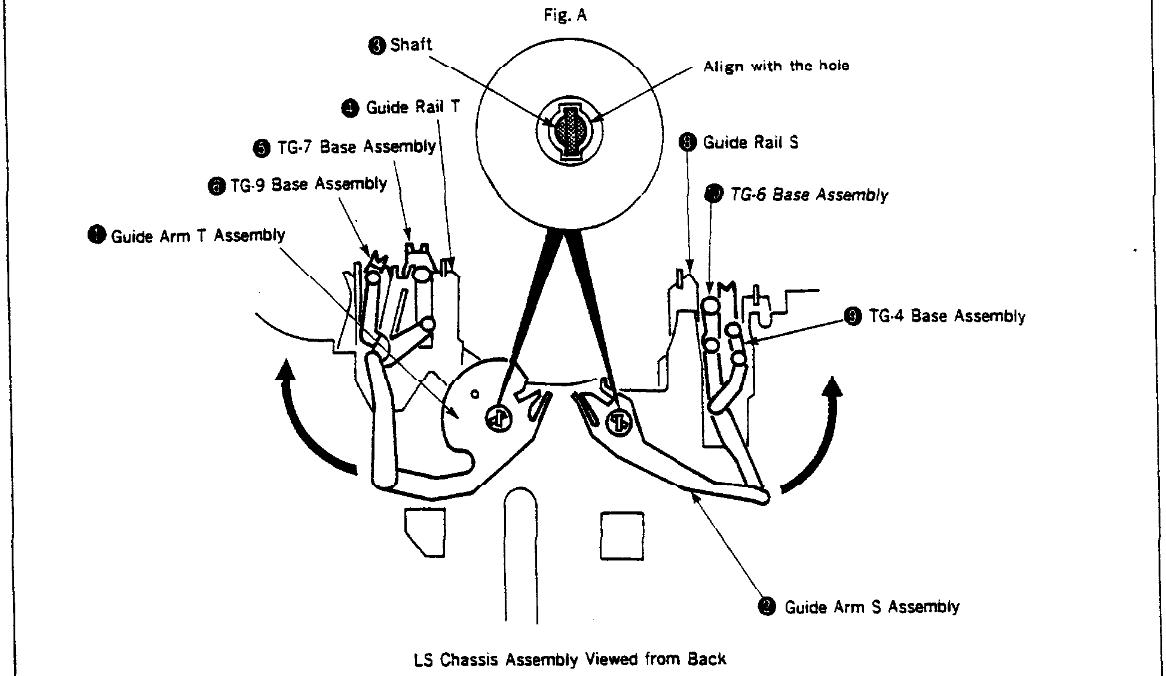


Fig. A
❸ Shaft
Align with the hole
❹ Guide Rail T
❺ TG-7 Base Assembly
❽ Guide Rail S
❻ TG-9 Base Assembly
❿ *TG-6 Base Assembly*
❶ Guide Arm T Assembly
❾ TG-4 Base Assembly
❷ Guide Arm S Assembly
LS Chassis Assembly Viewed from Back

Fig. 24

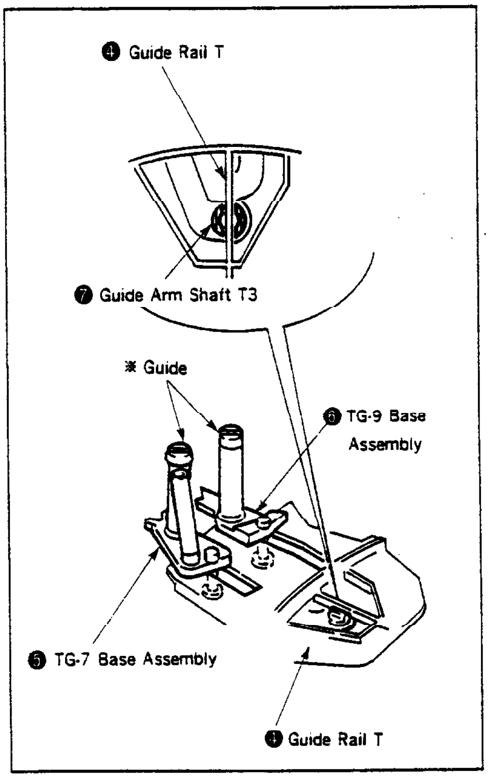

④ Guide Rail T
⑦ Guide Arm Shaft T3
※ Guide
⑥ TG-9 Base Assembly
⑤ TG-7 Base Assembly
④ Guide Rail T

Fig. 25

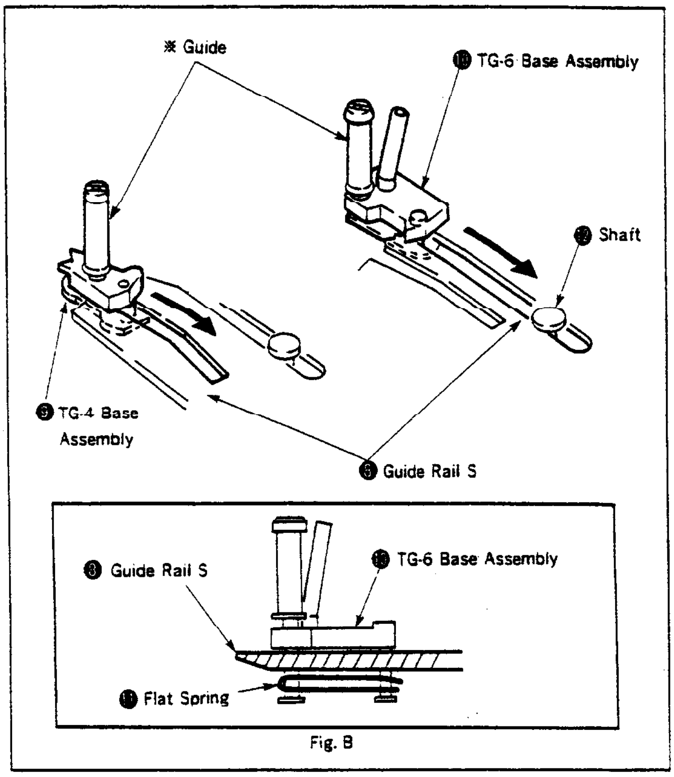

※ Guide
⑩ TG-6 Base Assembly
⑫ Shaft
⑨ TG-4 Base Assembly
⑧ Guide Rail S
⑧ Guide Rail S
⑩ TG-6 Base Assembly
⑪ Flat Spring

Fig. B

Fig. 26

13 PINCH PRESS ARM ASSEMBLY (Fig. 27)

Removal

Referring to 1-1, remove the cassette compartment holder assembly.

Referring to 3-7, remove the LS chassis.

Remove the screw ❶, and then, pinch press arm assembly ❷.

2. Mounting

1) As shown in A, apply half a drip of molyton grease to an arrowindicated part of a boss hole.
2) As shown in Fig. B, apply half a drip of molyton grease each to the pinch press arm assembly ❷ at 3 places.
3) Put the pin ❹ of the pinch press arm assembly ❷ in the groove of the cam B ❸.
4) Fix. with the screw ❶.
5) Referring to 3-7, mount the LS chassis assembly.
6) Referring to 1-1, mount the cassette compartment holder assembly.

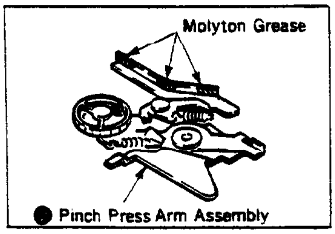

Molyton Grease
❷ Pinch Press Arm Assembly

Fig. B

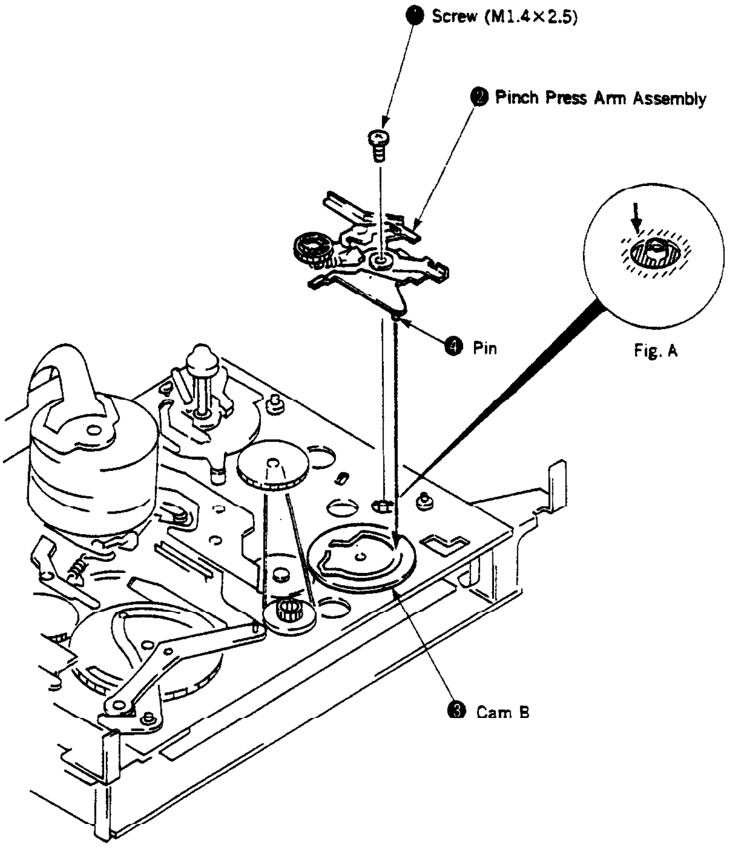

❶ Screw (M1.4×2.5)
❷ Pinch Press Arm Assembly
❹ Pin
Fig. A
❸ Cam B

Fig. 27

3-14 GL SLIDER ASSEBLY (Fig. 28)

1. Removal

1) Refering to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis assembly.
3) Referring to 3-15, remove the cam A.
4) Shift the GL slider assembly ❹ in a direction of the arrowⒶ.
5) Remove the screw ❶, and then, GL support S ❷.
6) Remove the lock washer ❸, and then, GL slider assembly ❹.

2. Mounting

1) Fit the claw ❺ of the GL slider assembly ❹ in the groove of the GL support T ❼, and put the roller ❻ in the long hole of the chassis.
2) Stop with the lock washer ❸.
3) Shift the GL slider assembly ❹ in a direction of the arrowⒶ.
4) Fit the claw ❽ of the GL support ❷ in the part of the chassis marked with ⋇ and place the dowel ❾ in the hole of the chassis.
5) Fix with the screw ❶.
6) Referring to 3-7, mount the LS chassis assembly.
7) Referring to 1-1, mount the cassette compartment holder assembly.

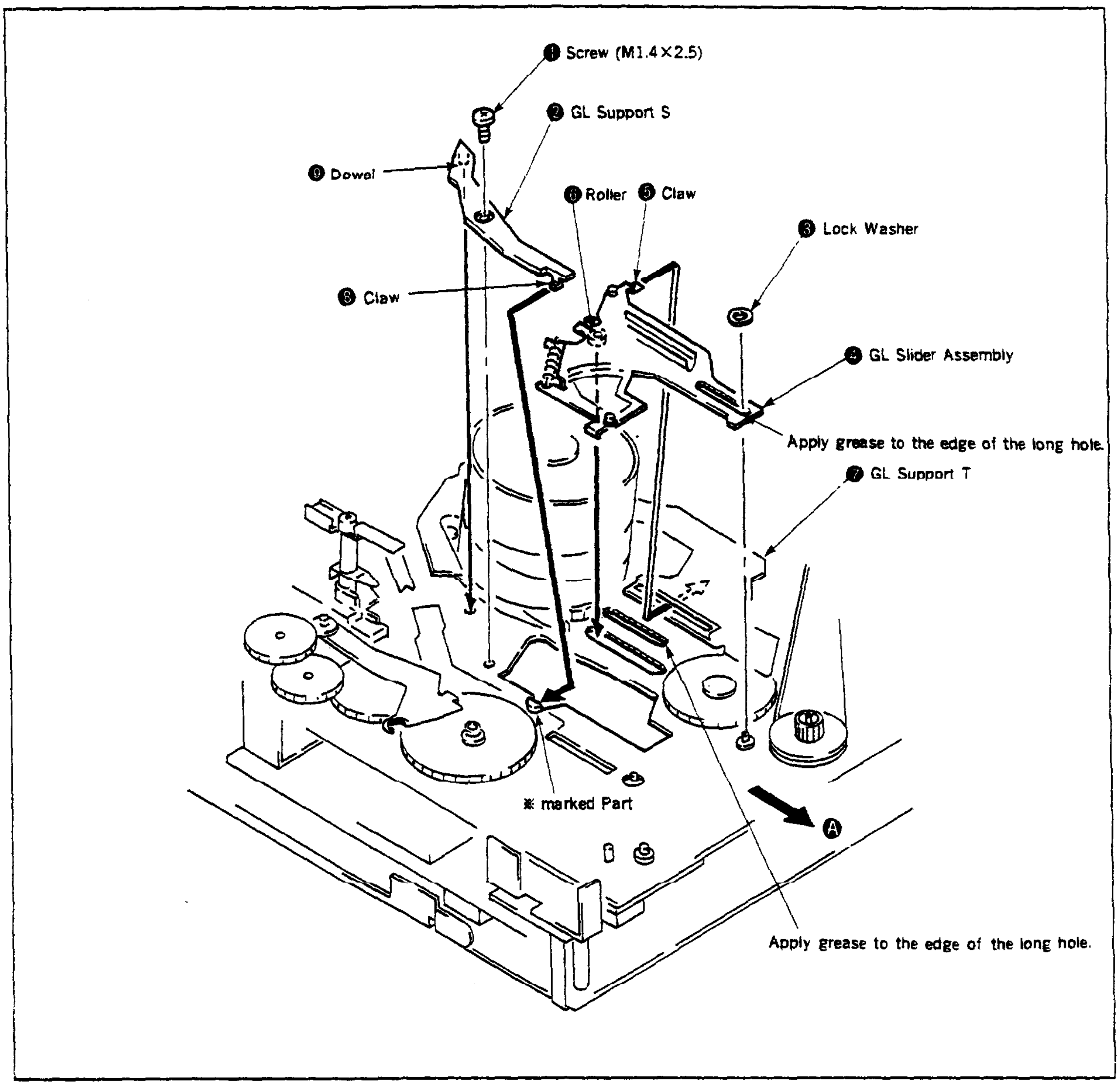

❶ Screw (M1.4×2.5)
❷ GL Support S
❾ Dowel
❻ Roller
❺ Claw
❸ Lock Washer
❽ Claw
❹ GL Slider Assembly
Apply grease to the edge of the long hole.
❼ GL Support T
⋇ marked Part
Ⓐ
Apply grease to the edge of the long hole.

Fig. 28

3-15 PHASE ADJUSTMENT(Fig. 29)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis. (Wen this is done, one of the BLANK, REC and READY modes must be selected.)
3) Remove the two screws ❶, and remove the TG-1 cam base ❷ by moving it in a direction of the arrow Ⓐ. (Remove the notch ● from the groove of the No. 3 gear shaft.)
4) Remove the screw ❸, and remove the gear retainer ❹ by sliding it in a direction of the arrow Ⓑ.
5) Remove the arm assembly ❺, No. 0 gear ❻, No. 1 gear assembly ❼, No. 2 gear assembly ❽, No. 3 gear assembly ❾, lock washer ●, and then, mode gear assembly ●, respectively.
6) Being careful not to lose the LS roller ● of the LS arm, remove the LS arm assembly ● and EJ arm ●, respectively.
7) Remove the screw ●, and then, cam A ●.
8) Referring to 3-13 3), remove the pinch press arm assembly.
9) Remove the screw ●, and then, cam B ●.

2. Adjustment and Mounting

1) Face the hole ⓐ of the mode gear assembly ● to a direction of the arrow Ⓐ, move the GL slider assembly ● in a direction of the arrow Ⓑ, apply molyton grease to the pin of the GL slider assembly ●, and mount the LS roller ●. (Fig. 30)
2) Set a direction of the cam A ● so that the hole Ⓒ of the cam A ● will be aligned with the hole of the mechanical chassis. (Fig. 31)
3) Move the GL slider ● so that the LS roller ● will be placed into the groove ⓓ of the cam A ●. At the same time, engage the mode gear assembly ● with the gear of the relay gear A ●, and mount the cam A ●. Insert a stick of about ϕ1.5mm in the hole Ⓒ of the cam A ●. (Fig. 31)
4) Align the hole ⓔ of the cam B ● with the hole of the mechanical chassis. At the same time, engage the relay gear B ● with the gear and mount it. (Fig. 32)
5) Referring to 3-13, mount the pinch press arm assembly.
6) Align the hole ⓕ of the No. 3 gear assembly ❾ with the hole of the mechanical chassis, and at the same time, engage the mode gear assembly ● with the gear to mount. (Fig. 33)
7) Mount the No. 2 gear assembly ❽, No. 1 gear assembly ❼ and No. 0 gear ❻ in that order. Mount the arm assembly ❺ to the shaft and put the pin ● in the groove of the No. 3 gear assembly ❾, (Fig. 34)
8) Put the TG-1 cam base ❷ in place, fit the notch ● to the shaft and shift it in an arrow direction, and mount the screws ❶ and ❶ in that order. (Fig. 35)
9) Put the gear retainer ❹ in place, slide it in an arrow direction and fix it with the screw ❸. (Fig. 36)
10) Seeing to it that the EJ arm ● and the LS roller ● of the LS arm assembly ● are put in the groove ⓖ of the cam A ●, mount them in that order. (Fig. 29 and Fig. 30)
11) Referring to 3-7, mount the LS chassis assembly.
12) Referring to 1-1, mount the cassette compartment holder assembly.

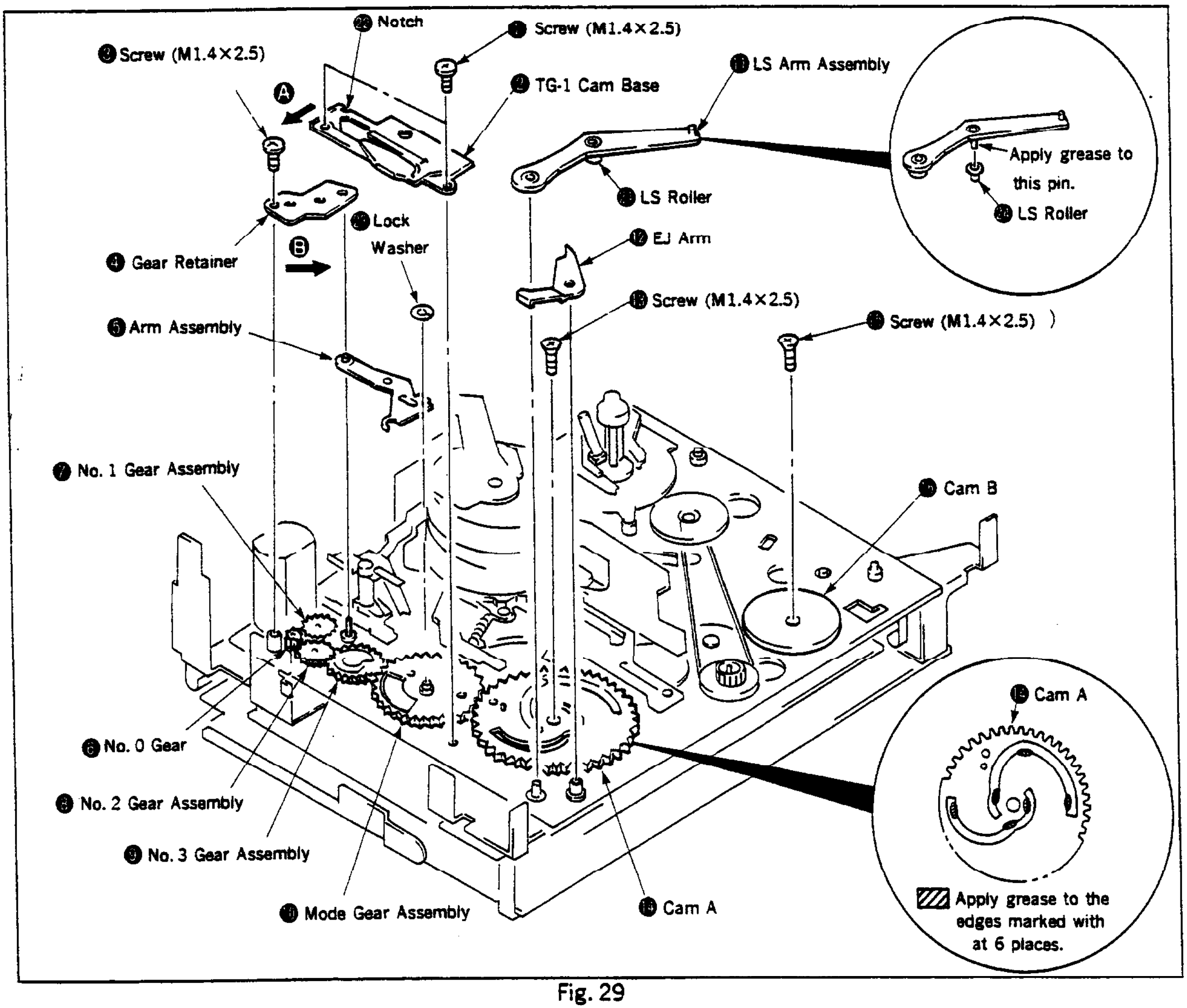

● Notch
● Screw (M1.4×2.5)
❸ Screw (M1.4×2.5)
Ⓐ
❷ TG-1 Cam Base
● LS Arm Assembly
Apply grease to this pin.
● LS Roller
● LS Roller
● Lock Washer
❹ Gear Retainer
Ⓑ
⑫ EJ Arm
● Screw (M1.4×2.5)
● Screw (M1.4×2.5)
❺ Arm Assembly
❼ No. 1 Gear Assembly
● Cam B
● Cam A
❻ No. 0 Gear
❽ No. 2 Gear Assembly
❾ No. 3 Gear Assembly
● Mode Gear Assembly
● Cam A
▨ Apply grease to the edges marked with at 6 places.

Fig. 29

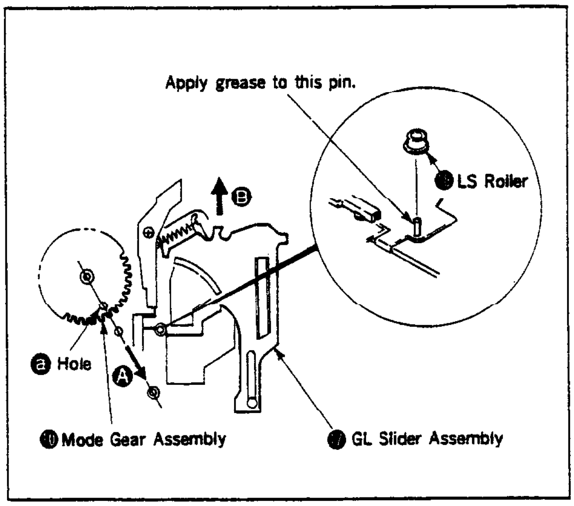

Apply grease to this pin.
⓳ LS Roller
Ⓑ
ⓐ Hole
Ⓐ
❿ Mode Gear Assembly
⓱ GL Slider Assembly

Fig. 30

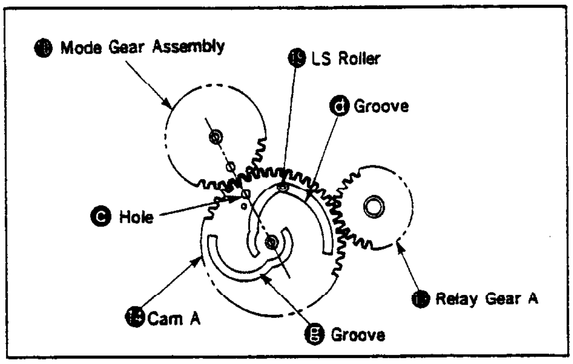

❿ Mode Gear Assembly
⓳ LS Roller
ⓓ Groove
ⓒ Hole
⓭ Cam A
ⓖ Groove
⓮ Relay Gear A

Fig. 31

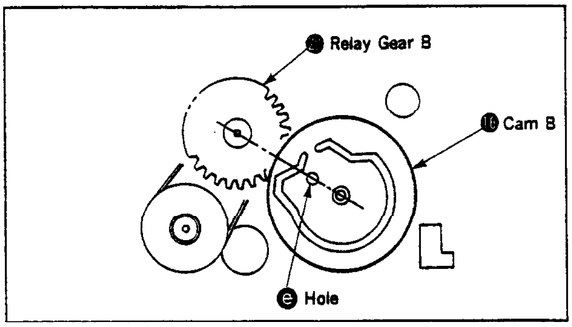

⓰ Relay Gear B
⓯ Cam B
ⓔ Hole

Fig. 32

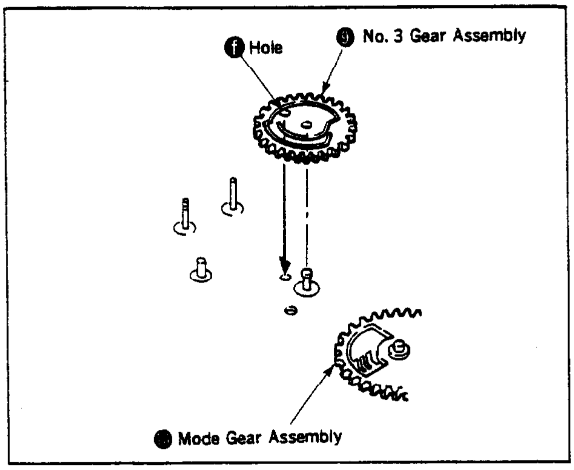

ⓕ Hole
❾ No. 3 Gear Assembly
❿ Mode Gear Assembly

Fig. 33

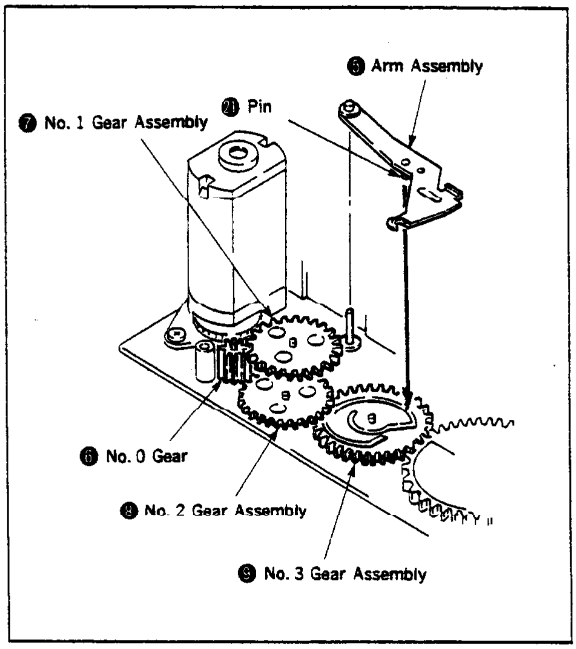

❺ Arm Assembly
(21) Pin
❼ No. 1 Gear Assembly
❻ No. 0 Gear
❽ No. 2 Gear Assembly
❾ No. 3 Gear Assembly

Fig. 34

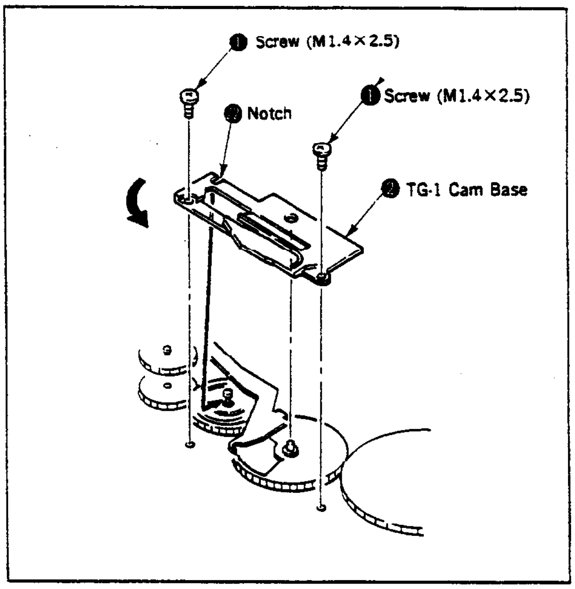

⓫ Screw (M1.4×2.5)
ⓗ Notch
⓫ Screw (M1.4×2.5)
⓬ TG-1 Cam Base

Fig. 35

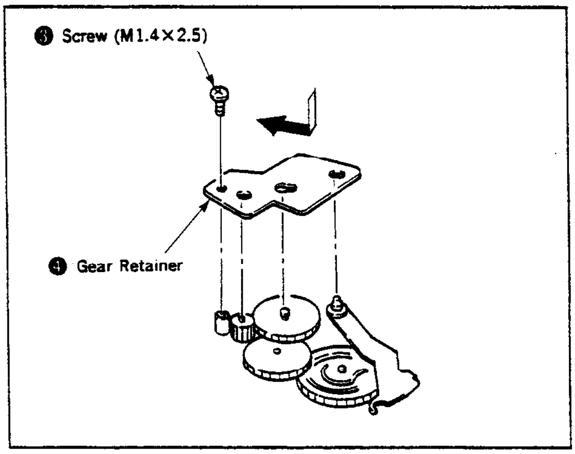

❸ Screw (M1.4×2.5)
❹ Gear Retainer

Fig. 36

.6 GEAR TRAIN OPERATION CHECK (Fig. 37)

Removal

Referring to 1-1, remove the cassette compartment holder assembly.

Referring to 3-7, remove the LS chassis.

Referring to 3-17, remove the loading motor.

Check

Insert the tip of tweezers into the hole a of the cam A ❶.

Rotate the cam A ❶ by about two thirds of a turn in a direction of the arrow Ⓐ, and then, in a direction of the arrow Ⓑ by the same amount. Repeat this 3 times.

When this is done, check that each, gear, the CL slider assembly and LS arm assembly rotate smoothly, and that no load is applied to them.

4) At the same time, check that the LS roller ❷ is located almost at the end point of the groove of the cam A ❶ when the gear train comes into contact with the stoppers at both ends.

Note : When rotating the cam A ❶ with the tip of tweezers, etc., be careful not to scratch the mechanical chassis.

3. Mounting

1) Referring to 3-17, mount the loading motor.
2) Referring to 3-7, mount the LS chassis assembly.
3) Referring to 1-1, mount the cassette compartment holder assembly.

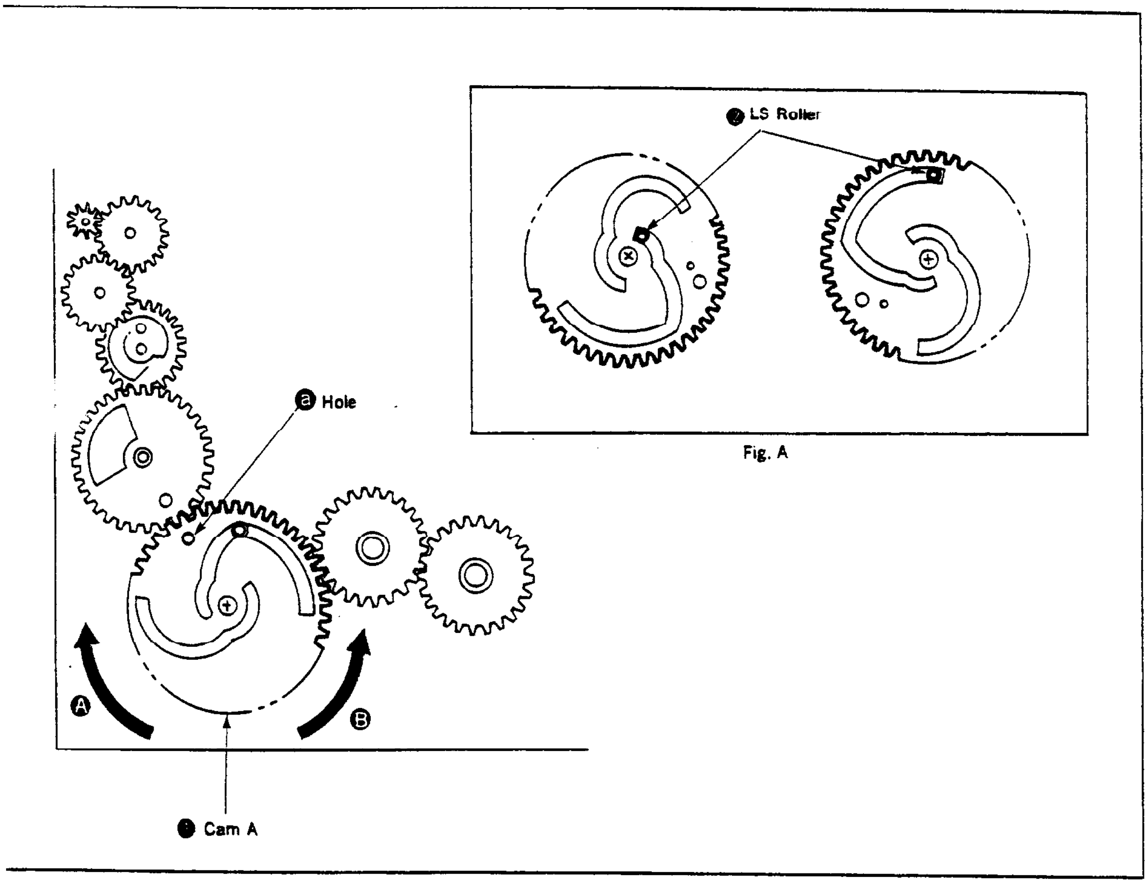


Fig. 37

3-17 LOADING MOTOR ASSEMBLY (Fig. 38)

1. Removal

1) Remove the LB-12 board.
2) Remove the connector ❶.
3) Remove the screws ❷ and ❸, and remove the loading motor assembly ❹ in an arrow direction.

2. Mounting

1) Put the pin ❺ of the loading motor assemmbly ❹ in the hole of the mechanical chassis, and mount it with the screws ❷ and ❸ in that order.
2) Mount the connector ❶.
3) Mount the LB-12 board.

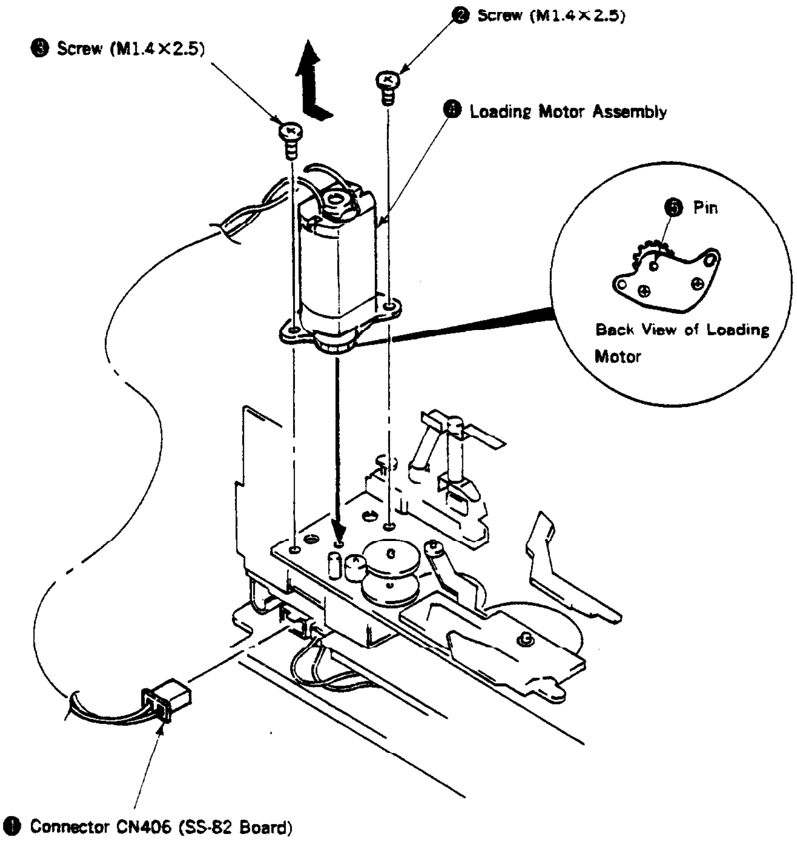

❷ Screw (M1.4×2.5)
❸ Screw (M1.4×2.5)
❹ Loading Motor Assembly
❺ Pin
Back View of Loading Motor
❶ Connector CN406 (SS-82 Board)

Fig. 38

3-18 GUIDE RAIL BASE 1 ASSEMBLY (Fig. 39)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Unskate the LS chassis a little.
3) Remove the two screws ●, and then, guide rail base 1 assembly ●.

Note : Be careful not to lose the spacers inserted in the parts ⓐ and ⓑ of the guide rail base 1 assembly ●. (Fig. B)

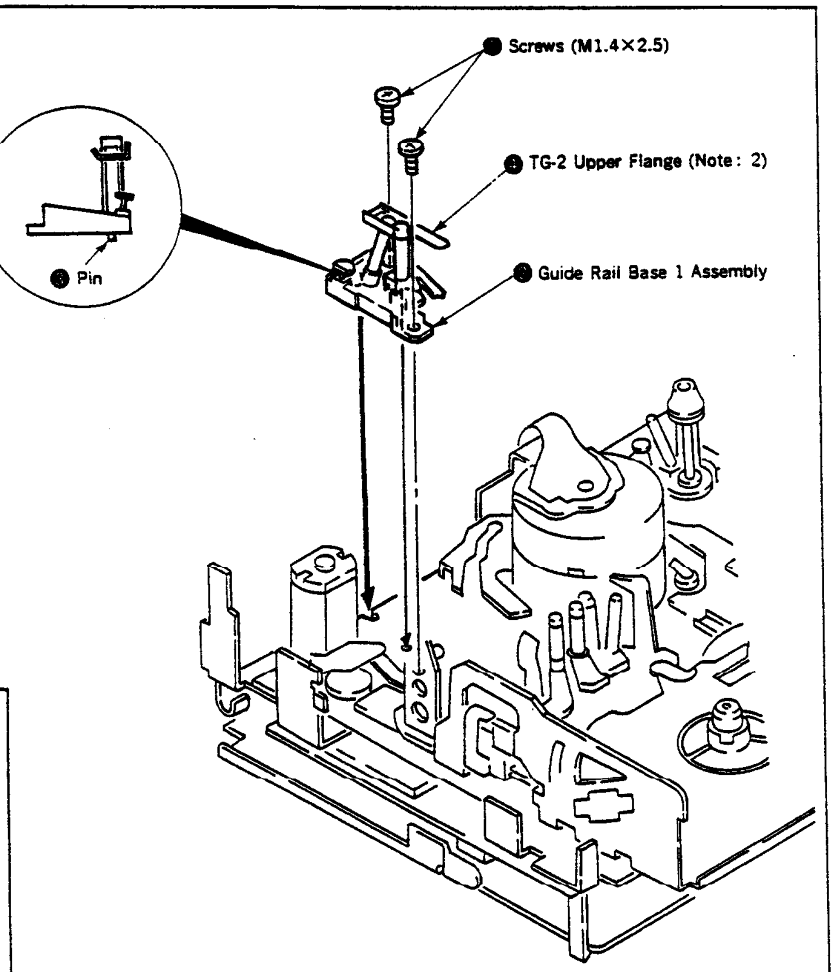
2. Mounting

1) Apply half a drip each of molyton grease at 2 places on the back of the guide rail base 1 assembly. (Fig. A)
2) Put the pin ● of the guide rail base 1 assembly ● in the notch of the chassis, and tighten the two screws ● with a torgue of 0.6kg•cm.
3) Referring to 1-1, mount the cassette compartment holder assembly.

Note1 : Mount paying attention to the number of spacers inserted and their locations.

Note2 : When tightening the screws, be careful not to bend the TG-2 upper flange ● with a screwdriver bit.

Note3 : Note that the part c of the guide rail base 1 assembly is easily broken. (Fig. B)


● Screws (M1.4×2.5)
● TG-2 Upper Flange (Note: 2)
● Guide Rail Base 1 Assembly
● Pin

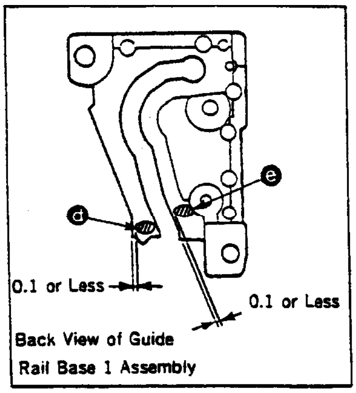

ⓔ
ⓓ
0.1 or Less
0.1 or Less
Back View of Guide
Rail Base 1 Assembly

Fig. A

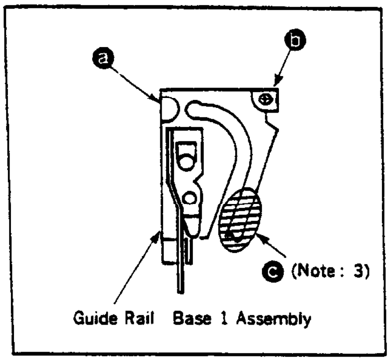

ⓐ
ⓑ
ⓒ (Note: 3)
Guide Rail Base 1 Assembly

Fig. B

図39.

3-19 GUIDE RAIL BASE 2 ASSEMBLY (Fig. 40)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to the Service Manual, open the board in the back of the mechanical chassis.
3) Remove the four screws ●, and then, frame B assembly ● in a direction of the arrowⒶ.
4) Unskate the LS chassis a little.
5) Remove the two screws ●, and then, guide rail base 2 assembly ● in a direction of the arrowⒷ.

Note : Be careful not to hit the drum with a screwdriver bit because the screws are located closed to a drum lead.

2. Mounting

1) Apply half a drip of molyton grease each to 4 places on the back of the guide rail base 2 assembly. (Fig. A)
2) As shown in Fig. B, apply the striking parts of the guide rail base 2 assembly ● to the lower drum, and slide in an arrow direction to fit.
3) Pushing the part ✱ of the guide rail base 2 assembly ● lightly in a direction of ⓔ (Fig. B), tighten the two screws ● with a torque of 0.8kg•cm.

Note : Note that the part f is easily broken.

4) Mount the frame B assembly with the four screws ●.
5) Mount the opened board to the back of mechanical chassis.
6) Referring to 1-1, mount the cassette compartment holder assembly.

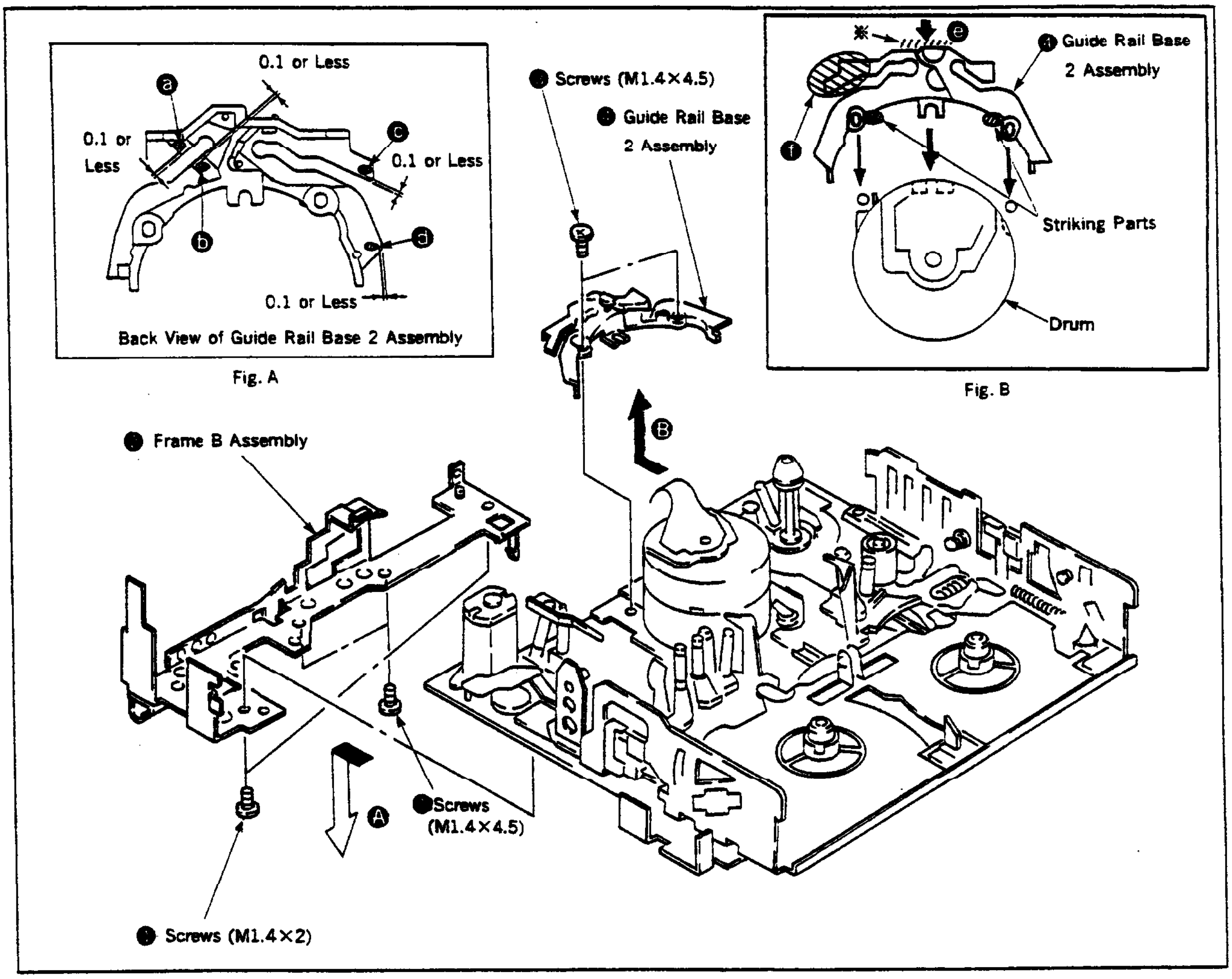

0.1 or Less
ⓐ
0.1 or Less
ⓒ
0.1 or Less
ⓑ
ⓓ
0.1 or Less
Back View of Guide Rail Base 2 Assembly
● Screws (M1.4×4.5)
● Guide Rail Base 2 Assembly
✱
ⓔ
● Guide Rail Base 2 Assembly
ⓕ
Striking Parts
Drum
● Frame B Assembly
Ⓑ
Ⓐ
●Screws (M1.4×4.5)
● Screws (M1.4×2)

Fig. A

Fig. B

Fig. 40

3-20 GUIDE RAIL BASE 3 ASSEMBLY (Fig. 41)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Remove the flexible rotatry shaft ●.
3) Remove the two screws ●. Remove the guide rail base 3 assembly ● in an arrow direction, seeing to it that it does not hitch on the capstan housing.

Note : Handle the ※ marked part carefully because it is easily broken.

2. Mounting

1) Apply half a drip of molyton grease each to 2 places on the back of the guide rail base 3 assembly ●. (Fig. A)
2) Mount the guide rail base 3 assembly ●, seeing to it that it does not hitch on the capstan housing.
3) Tighten the two screws ● with a torque of 0.6kg•cm.
4) Mount the flexible rotary shaft ●.
5) Referring to 1-1, mount the cassette compartment holder assembly.

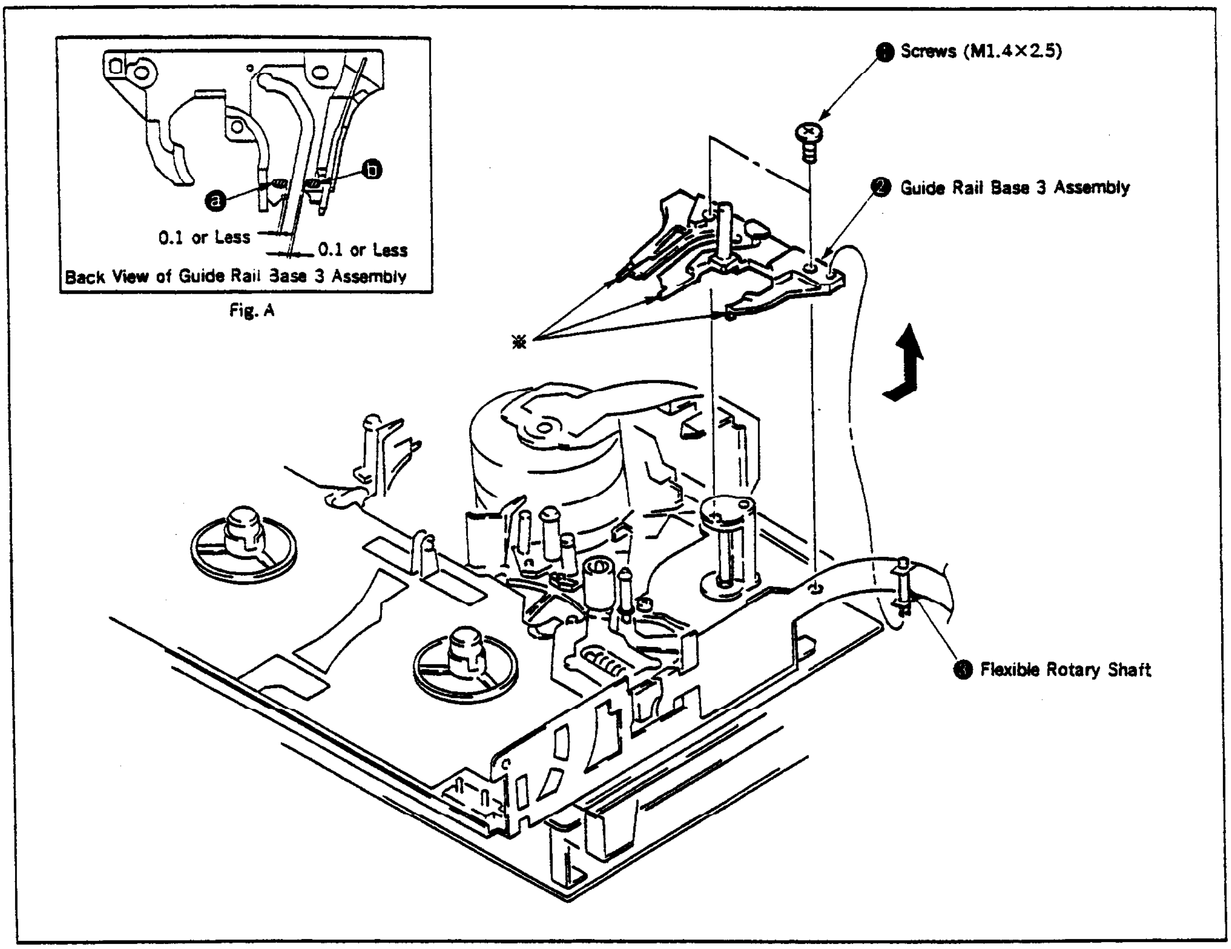

ⓐ
ⓑ
0.1 or Less
0.1 or Less
Back View of Guide Rail Base 3 Assembly
Fig. A
❶ Screws (M1.4×2.5)
❷ Guide Rail Base 3 Assembly
※
❸ Flexible Rotary Shaft

Fig. 41

3-21 CAPSTAN MOTOR ASSEMBLY (Fig. 42)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-20, remove the guide rail base 3 assembly.
3) Remove the connector ❷ of the capstan motor assembly ❶.
4) Remove the screw ❸. Disengaging the gear of the conversion gear assembly ❹, remove the capstan motor assembly ❶ in an arrow direction (obliquely).

2. Mounting

1) As shown in Fig. A, incline the capstan motor assembly ❶ to engage the gear of the capstan motor assembly ❶ with that of the conversion gear assembly ❹, and tighten the screw 3 with a torque of 1kg•cm.
   When this is done, be careful not to damage the gear of the conversion gear assembly ❹.
2) Mount the connector 2 to the capstan motor assembly ❶.
3) Referring to 3-20, mount the guide rail base 3 assembly.
4) Referring to 1-1, mount the cassette compartment holder assembly.

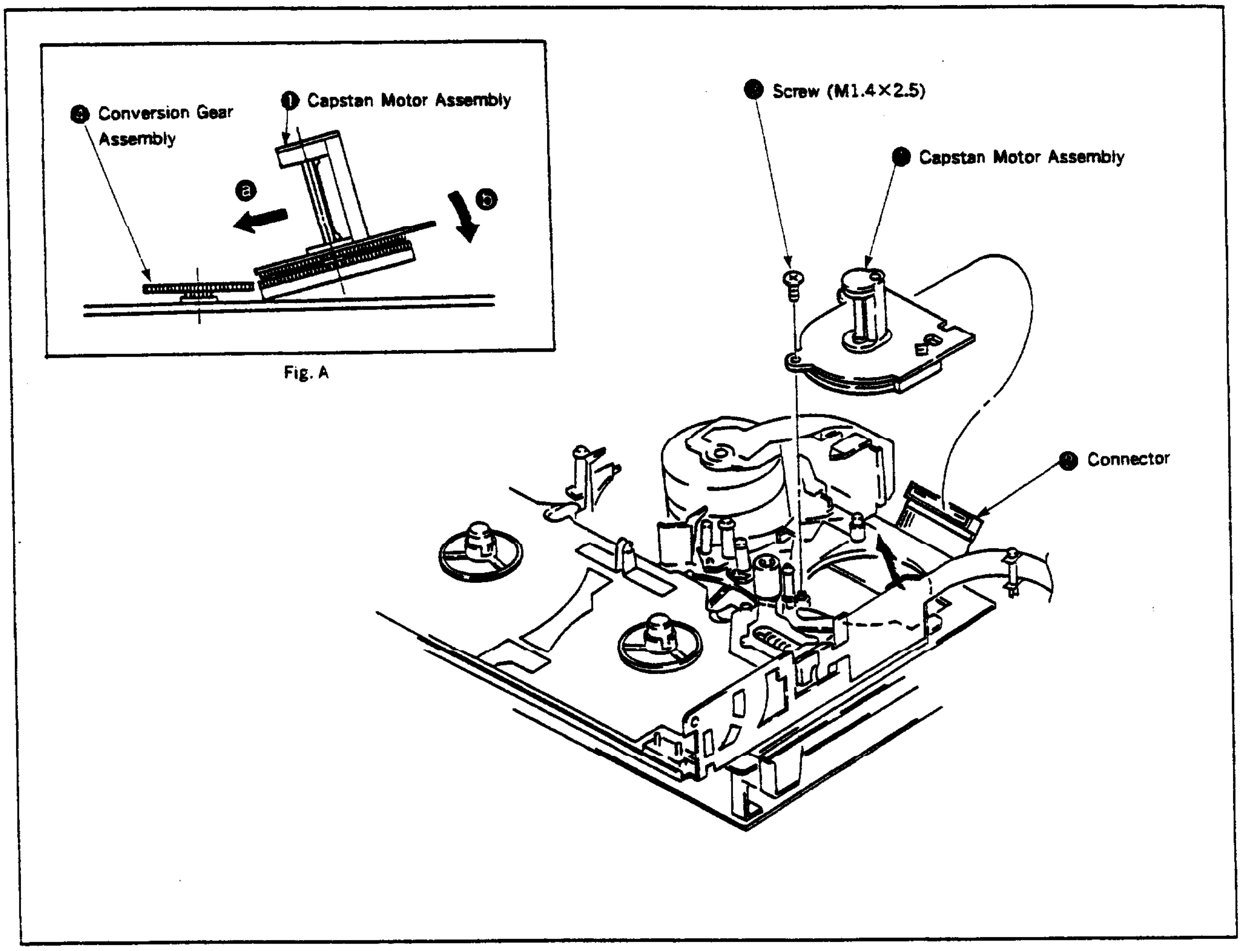

❹ Conversion Gear Assembly
❶ Capstan Motor Assembly
ⓐ
ⓑ
❸ Screw (M1.4×2.5)
❶ Capstan Motor Assembly
❷ Connector

Fig. A

Fig. 42

3-22 DRUM BASE ASSEMBLY (Fig. 42)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Remove the motor flexible board ❶ from the board.
3) Referring to 3-19, remove the guide rail base 2 assembly.
4) Remove the two screws ❷.
5) Draw out the head flexible board ❸ carefully from the hole of the mechanical chassis not to damage it, and remove the drum base assembly.

2. Mounting

1) Put the head flexible board ❸ in the hole of the mechanical chassis and put the positioning pins ❹ of the drum base in the holes of the mechanical chassis.
2) Tighten the two screws ❷ with a torque of 0.8kg•cm.
3) Referring to 3-19, mount the guide rail base 2 assembly.
4) Mount the motor flexible board ❶ to the board.
5) Referring to 1-1, mount the cassette compartment holder assembly.

Note : After mounting, make tape path adjustment in Section 4.

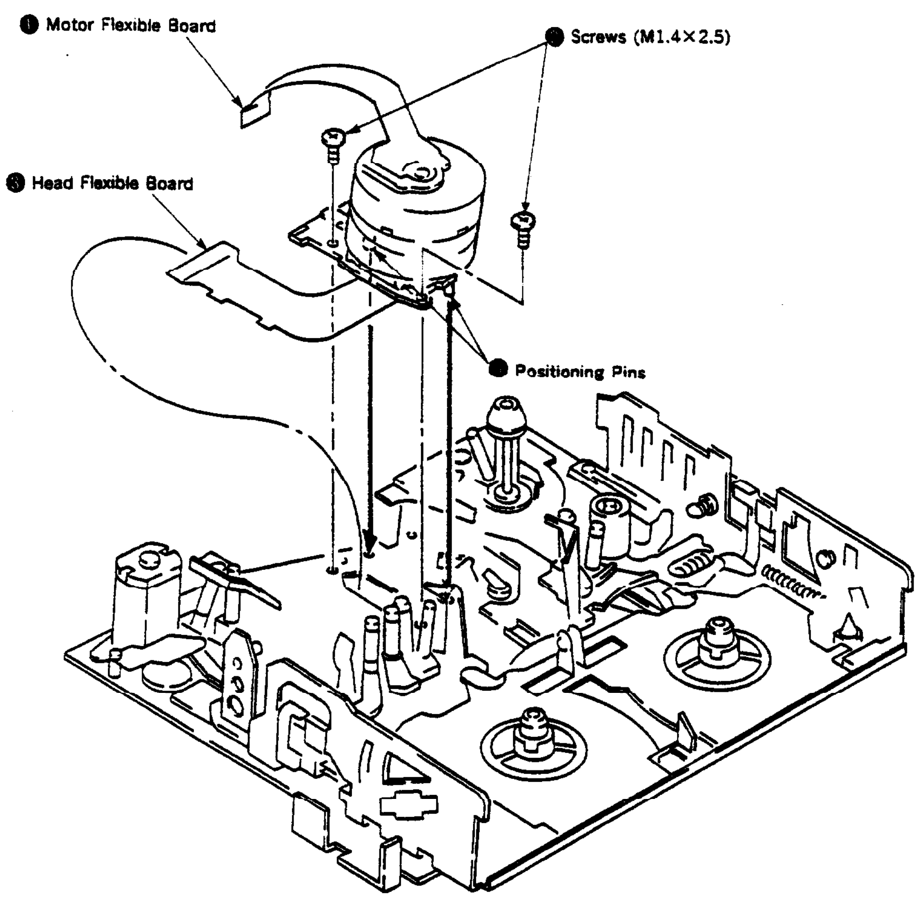


Fig. 42

3-23 DRUM ASSEMBLY (Fig. 43)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Remove the motor flexible board ❶ from the board.
3) Referring to 3-19, remove the guide rail base 2 assembly.
4) Remove the three screws ❷ from the back of the mechanical chassis.
5) Draw out the head flexible board ❸ carefully from the hole of the mechanical chassis not to damage it, and remove the drum assembly ❹.

2. Mounting

1) Put the head flexible board ❸ in the hole of the mechanical chassis, and mount it so that the pins ⓑ and ⓓ will be put in the holes ⓐ and ⓒ shown in Fig. A.
2) Tighten the three screws ❷ with a torque of 0.5kg•cm.
3) Referring to 3-19, mount the guide rail base 2 assembly.
4) Mount the motor flexible board ❶ to the board.
5) Referring to 1-1, mount the cassette compartment holder assembly.

Note : After mounting, make tape path adjustment in Section 4.

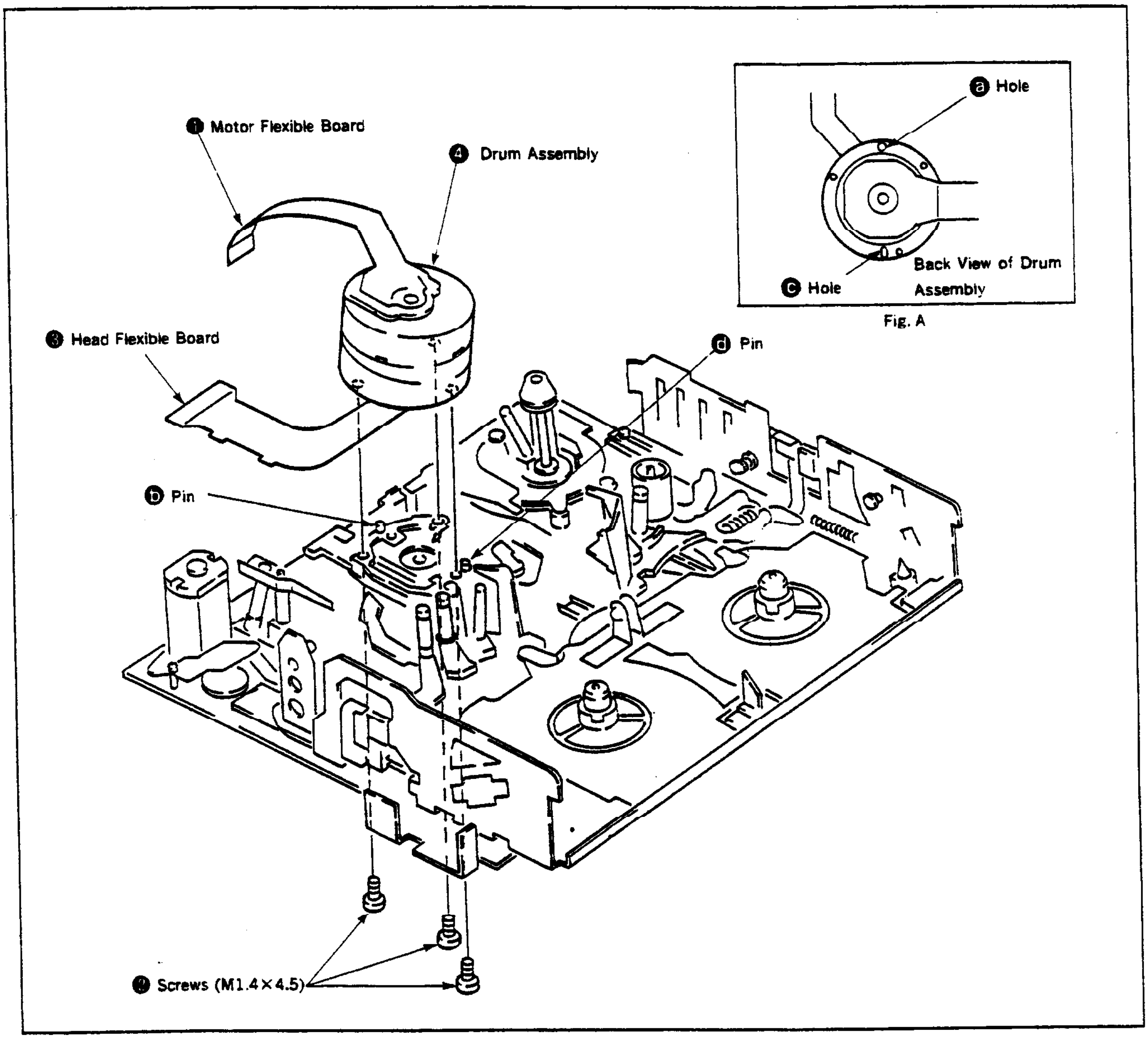
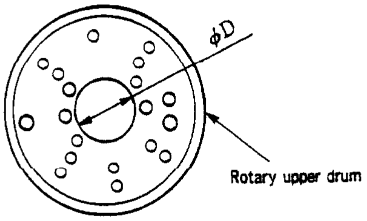

ⓐ Hole
❶ Motor Flexible Board
❹ Drum Assembly
Back View of Drum Assembly
ⓒ Hole
Fig. A
❸ Head Flexible Board
ⓓ Pin
ⓑ Pin
❷ Screws (M1.4×4.5)

Fig. 43

3-24 Replacement of Rotary Upper Drum Assembly

There are two rotary upper drum assembly types, depending on a color mark. (Fig. A in Fig. 45)



NTSC:

A-7049-190-A	Rotary upper drum assembly DGR-32-R-(1)
A-7049-189-A	Rotary upper drum assembly DGR-32-R-(2)

PAL:

A-7049-197-A	Rotary upper drum assembly DGR-37-R-(1)
A-7049-198-A	Rotary upper drum assembly DGR-37-R-(2)

Manufacturing upper dram

RANK	ϕD	MARK	
A	$\phi 8^{+0.0015}_{+0.001}$	Green	−01
B	$\phi 8^{+0.001}_{+0.0005}$	Green, Brown	
C	$\phi 8^{+0.0005}_{0}$	Black	
D	$\phi 8^{0}_{-0.0005}$	Black, Brown	
E	$\phi 8^{-0.0005}_{-0.001}$	Red	−11
F	$\phi 8^{-0.001}_{-0.0015}$	Red, Brown	
G	$\phi 8^{-0.0015}_{-0.002}$	Blue	
H	$\phi 8^{-0.002}_{-0.0025}$	Blue, Brown	

➡

Repairing upper drum

SUFFIX	ϕD	REMARKS	DRUM UPPER
−01	$\phi 8^{+0.001}_{+0.0005}$	Green, Brown	NTSC DGR-32-R-(1) PAL DGR-37-R-(1)
	$\phi 8^{+0.0005}_{0}$	Black	
−11	$\phi 8^{-0.001}_{-0.0015}$	Red, Brown	NTSC DGR-32-R-(2) PAL DGR-37-R-(2)
	$\phi 8^{-0.0015}_{-0.002}$	Blue	

1. Removal

1) Referring to 3-23, remove the drum assembly.
2) Remove the two screws ❶. (Fig. 44)
3) Hold the outlet (base) of the guide protector ●, lift it up obliquely. In that state, hold the outer figure of the back yoke ● and remove it. (Fig. 44)

Note : Note that the flexible board and guide protector ● easily come off position because they are only pasted.

4) As shown in Fig. A, set the rotor earth spring ● around spring hook. (Fig. 44)
5) Using a drum screwdriver (Ref. No. J-11), remove the two hexagon socket bolts ●, and then, rotary upper drum assembly ●. (Fig. 45)
6) Using the drum screwdriver (Ref. No. J-11), remove the two hexagon socket bolts ❼, and then, rotor ❽. (Fig. A in Fig. 45)

2. Mounting

1) Clean the flange surface ● and the surface of the rotary upper drum assembly ● which comes into contact with it, and make sure that there is no dust or scratch. (Fig. 45)
2) Adjust a direction of the upper drum so that the head contact mold pin ● will be put in the reference hole of the rotary upper drum assembly ●, and push it in lightly. (Fig. 45)

Note : Check visually that the clearance between the upper and lower drums is about 0.05mm.

3) Using the drum screwdriver (Ref. No. J-11), tighten the two hexagon socket bolts ❺ (800g•cm) and rotate it with finger to make sure that there is no abnormality. (Fig. 45)
4) Put the pin ● of the rotor ● in the hole of the rotary upper drum assembly. Using the drum screwdriver (Ref. No. J-11), tighten the hexagon socket bolts ❼. (800g•cm) (Fig. A in Fig. 45)
5) Remove the rotor earth spring ● from the spring hook. Using tweezers, etc., hook it onto the groove of the stator boss ●. (Fig. B in Fig. 45)

Note : See to it that the rotor earth spring ● is not located in the gap between the flange and stator.

6) Hold the outer figure of the back yoke ●, put it on the inner step of the upper drum and insert the other side slowly. (Fig. B in Fig. 44)
7) Tighten the two screws ●. (500g•cm) (Fig. 44)
8) Rotate the upper drum with finger to check that it runs smoothly.
9) Referring to 3-23, mount the drum assembly.

Note : After mounting, be sure to make tape path adjustment in Section 4.

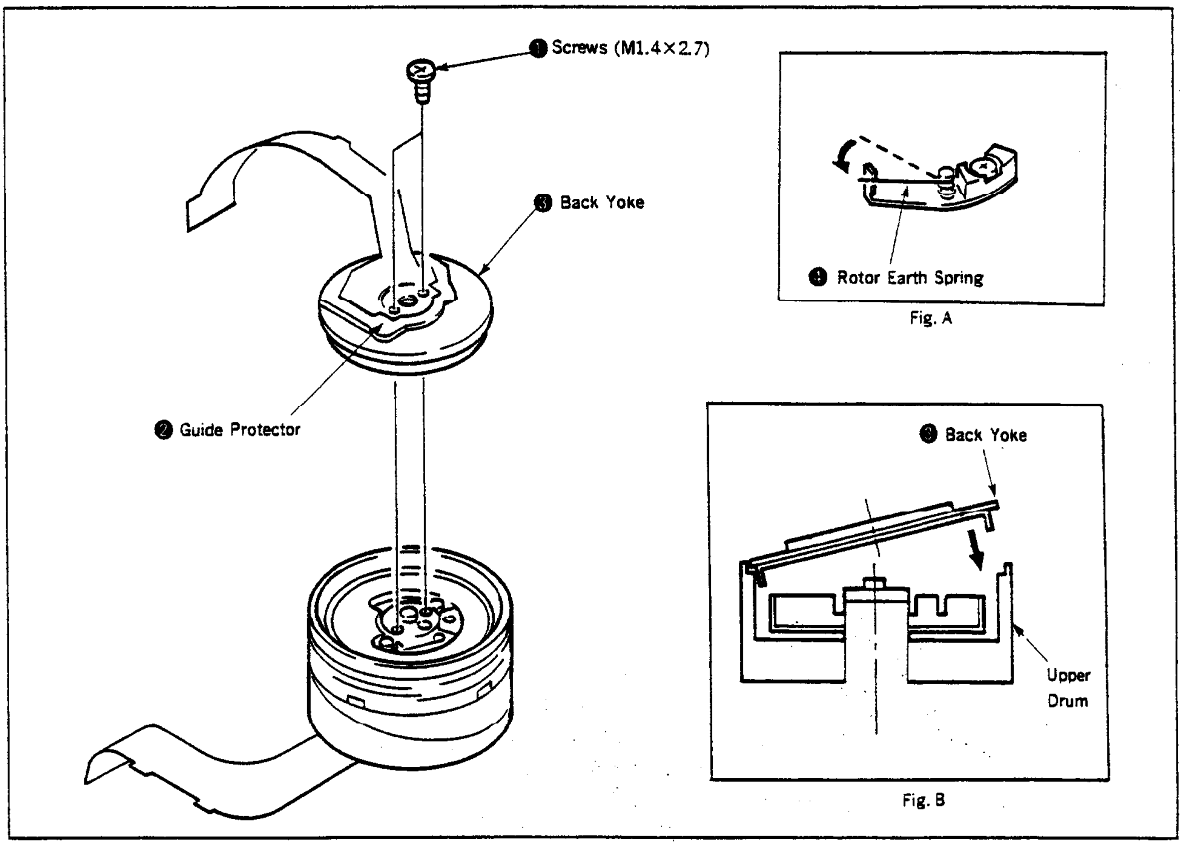

❶ Screws (M1.4×2.7)
❸ Back Yoke
❷ Guide Protector
❹ Rotor Earth Spring
❸ Back Yoke
Upper Drum

Fig. A

Fig. B

Fig. 44

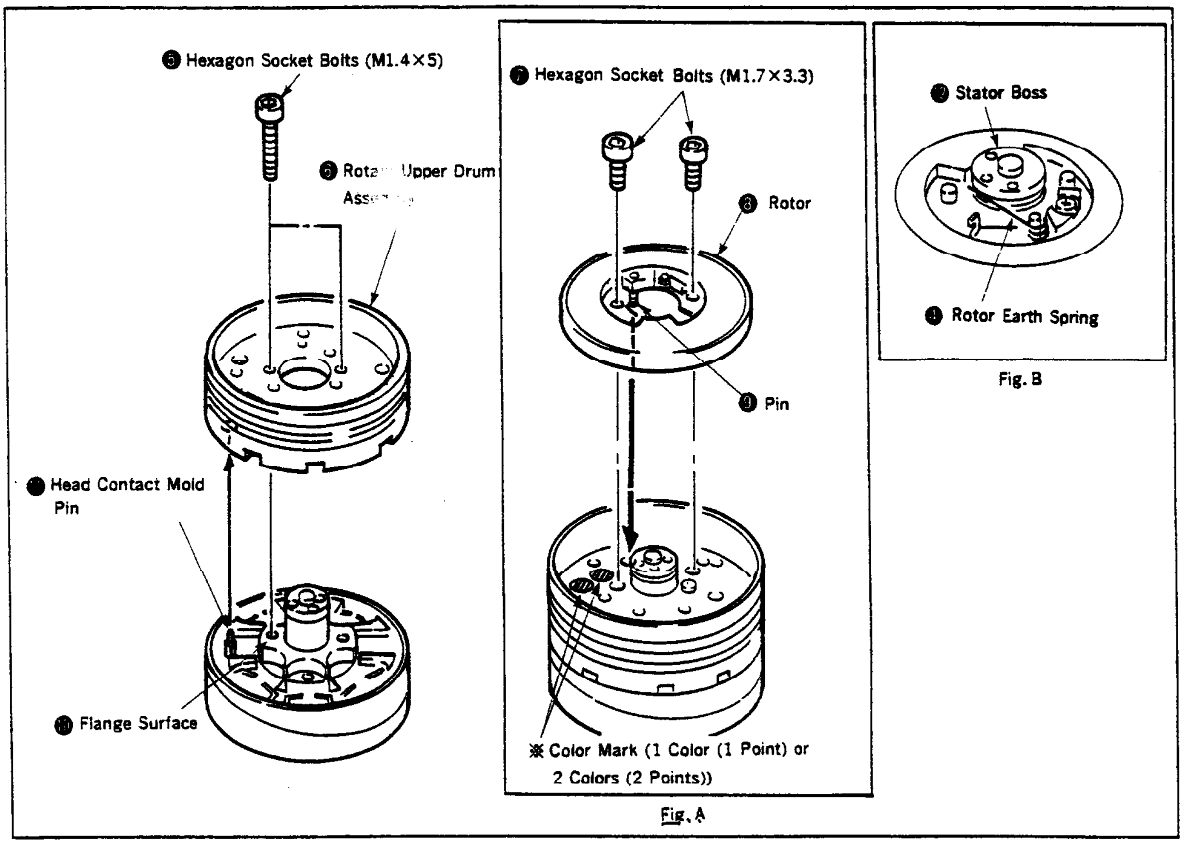

❺ Hexagon Socket Bolts (M1.4×5)
❻ Rota Upper Drum
Ass
● Head Contact Mold Pin
❿ Flange Surface
❼ Hexagon Socket Bolts (M1.7×3.3)
❽ Rotor
❾ Pin
※ Color Mark (1 Color (1 Point) or 2 Colors (2 Points))
⓬ Stator Boss
❹ Rotor Earth Spring

Fig. A

Fig. B

Fig. 45

5 REEL TABLE HEIGHT CHECK (Fig. 46)

Removal

Referring to 1-1, remove the cassette compartment holder assembly.

Referring to 3-1, remove the LED base.

Check

Using slide calipers, etc., check that distances from the LS chassis to the S reel table reel resting surface ❷ and T reel table reel resting surface ❸ are ~~3.2±0.5mm~~ respectively.

3. Mounting

1) Referring to 3-1, mount the LED base.
2) Referring to 1-1, mount the cassette compartment holder assembly.

changed values

A:$3.2^{+0.2}_{-0.15}$mm
B:3.2±0.15mm

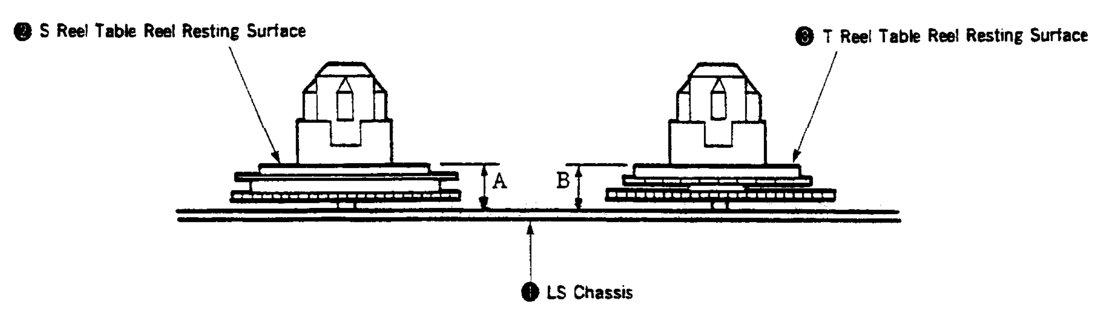

❷ S Reel Table Reel Resting Surface
❸ T Reel Table Reel Resting Surface
A
B
❶ LS Chassis

Fig. 46

6 FWD/RVS TORQUE CHECK

Set the FWD/RVS take-up torque cassette (Ref. No. J-10).

In the FWD mode, check that a T reel torque value is ~~6g·cm — 16g·cm~~ ☚ **changed value** 5 – 15g·cm.

Turn on the REC/REVIEW button and check that an S reel torque value is 25g·cm – 45g·cm.

When the values above are not met, replace the respective reel tables.

3-27 TENSION REGULATOR POSITION ADJUSTMENT

1. Removal

1) Referring to 1-1, remove the cassette compartment holder.

2. Adjustment

1) Set a cassette tape, select the REC mode and run the tape. (Refer to 1-3)
2) With the tape running, check that the distance between TG-1 and TG-2 is ~~0.58±0.2mm~~ (Fig. 47)
3) When they are not at specified positions, remove the cassette and go through the steps 4) on.
4) Referring to 3-1, remove the LED base.
5) Loosen the screw ❶.

changed value

9.35 – 10.7mm.

6) When TG-1 is located inside (or outside) its specified position, shift the TG-1 adjustment block 2 slightly in a direction of the arrow Ⓐ (or Ⓑ) and fix with the screw ❶. (Fig. 48)
7) Referring to 3-1, mount the LED base.

Note : Use the cassette tape after feeding the tape as far as a middle point.

Note : When taking the steps 4) and 5), remove the cassette tape first.

Note : Check that TG1 is able to move in direction C during REC.

3. Mounting

1) Referring to 1-1, mount the cassette compartment holder assembly.

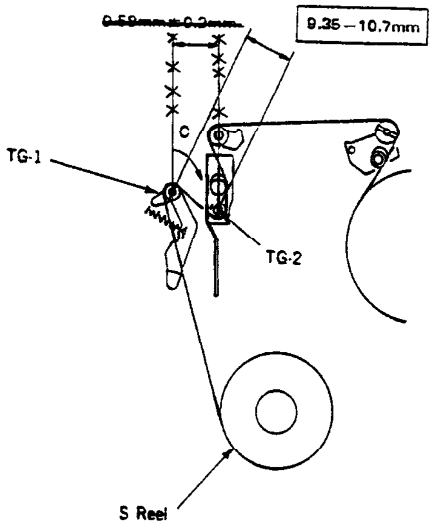


Fig. 47

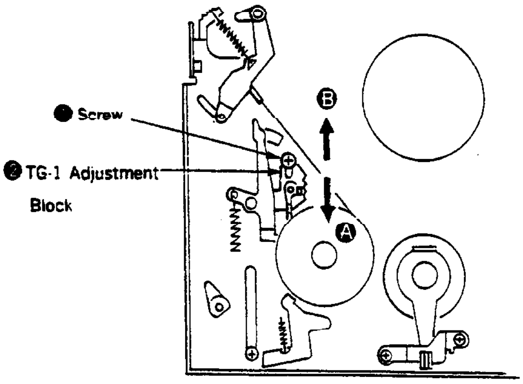


Fig. 48

3-28 FWD BACK TENSION ADJUSTMENT (Fig. 49)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-7, remove the LED base.

2. Adjustment

1) Select the REC mode.
2) Set the tension measurement reel (Ref. No. J-8)❶.
3) Using the dial tension gauge (Ref. No. J-7)❷, measure a tape tension at the outlet of TG-2. When this is done, pull the tape at a rate of 14mm/sec.
4) Change the position of the tention regulator spring ❸ position as shown in Fig. A so that measure center value of the tention is 4 g-6.5g.

Note : When this is done, see to it that the gear ❹ is not engaged with the S reel table.

3. Mounting

1) Referring to 1-1, mount the cassette compartment holder assembly.
2) Referring to 3-1, mount the LED base.

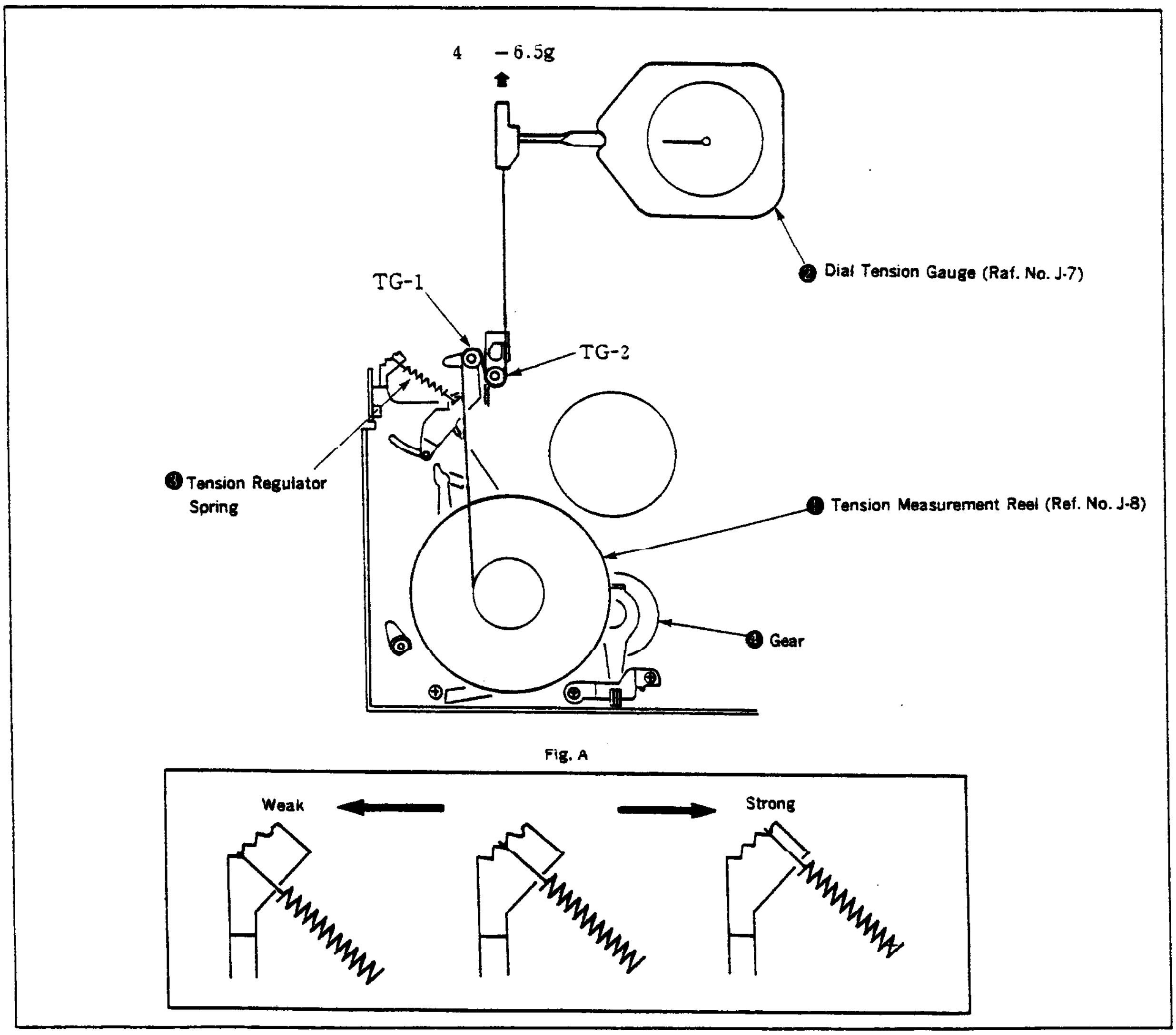

4 -6.5g
TG-1
TG-2
❷ Dial Tension Gauge (Raf. No. J-7)
❸ Tension Regulator Spring
❶ Tension Measurement Reel (Ref. No. J-8)
❹ Gear
Weak
Strong

Fig. A

Fig. 49

4. TAPE PATH ADJUSTMENT

The 8mm video system uses ATF (Automatic Track Finding) which instantaneously controls a tape running speed based on 4 types of pilot signals and performs high-precision tracking.

This does away a tracking control knob and allows accurate track tracing.

On the other hand, however, the ATF system has a problem in adjusting the tape path system. That is, if head tracing is out of order a little, the ATF system automatically corrects it, which means that perfect adjustment cannot be done.

To avoid this problem, a track shift jig had been used to adjust the tape path system. In the FL (Q) mechanism, the ATF system is forcibly operated to shift a tracking amount constantly (approx. 1/4) by setting the PATH mode. So, fine tracking adjustment can be easily done.

No track shift jig is required any more.

Example) For CCD-V11/V88

CN404

4	GND
3	$\overline{\text{CAM ADJ}}$
2	$\overline{\text{TEST}}$
1	$\overline{\text{PATH}}$

The path mode is set by shorting the pins ① and ④.

4-1 PREPARATION FOR ADJUSTMENT

1) Clean the tape running surfaces (tape guides, drum, capstan shaft, pinch roller). (Fig. 51)
2) Set the PATH mode by shorting the TEST pins (CN404 pins ① and ④ for CCD-V11/V88).
3) Connect to an oscilloscope.
4) Play back a tracking alignment tape (NTSC: WR5-1N), (PAL: WR5-1C).
5) Check that a RF waveform is flat at the inlet and outlet of the oscilloscope. (Fig. 50 ⓐ)

   When it is not flat, make adjustment in accordance with the procedures below.

   When the RF waveform is not flat at the inlet/outlet; (Fig.50 ⓑ and ⓒ)

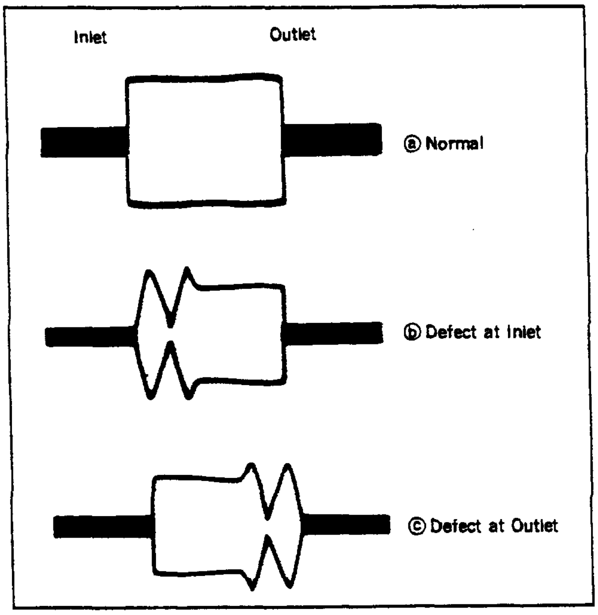

Inlet
Outlet
ⓐ Normal
ⓑ Defect at Inlet
ⓒ Defect at Outlet

Fig. 50

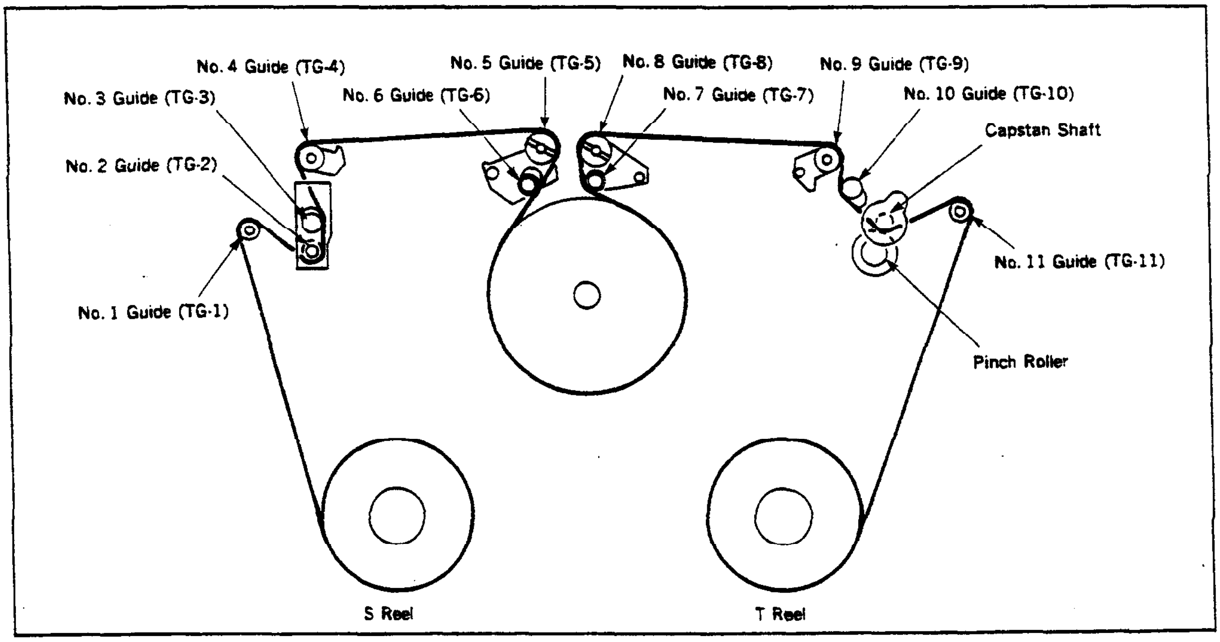

No. 4 Guide (TG-4)
No. 5 Guide (TG-5)
No. 8 Guide (TG-8)
No. 9 Guide (TG-9)
No. 3 Guide (TG-3)
No. 6 Guide (TG-6)
No. 7 Guide (TG-7)
No. 10 Guide (TG-10)
Capstan Shaft
No. 2 Guide (TG-2)
No. 11 Guide (TG-11)
No. 1 Guide (TG-1)
Pinch Roller
S Reel
T Reel

Fig. 51 Tape Guides Location

4-2 TRACKING ADJUSTMENT (Fig. 52)

1) Play back the tracking alignment tape.
2) Loosen the No. 5 guide (TG-5) lock screw ● and turn the No. 5 guide to flatten the waveform at the inlet.
3) Tighten the No. 5 guide (TG-5) lock screw ● to lock the No. 5 guide.
4) Loosen the No. 8 guide (TG-8) lock screw ● and turn the No. 8 guide to flatten the waveform at the outlet.
5) Tighten the No. 8 guide (TG-8) lock screw ● to lock the No. 8 guide. When this is done, make sure that the waveform does not change at the outlet.

Note : Be careful not to loosen the lock screw too much because the guide is easily moved.

Tape path Adjustment for "Guide Rail Base 2 with TG8 Gate Adjustment"

You do not have to adjust theTG-8 gate adjustment screw.

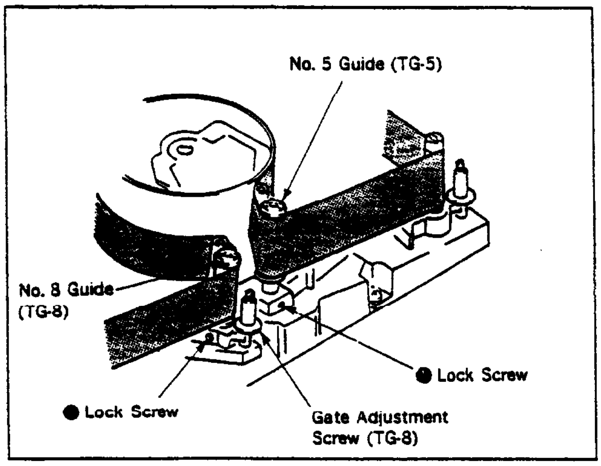


Fig. 52

4-3 NO. 4 GUIDE (TG-4) ADJUSTMENT

When an entire guide base is replaced, its height has been preste.

TG-4 Guide Height Presetting

1) With the top surface of the TG-4 guide leveled, rotate an upper flange by one turn. This is a preset height.

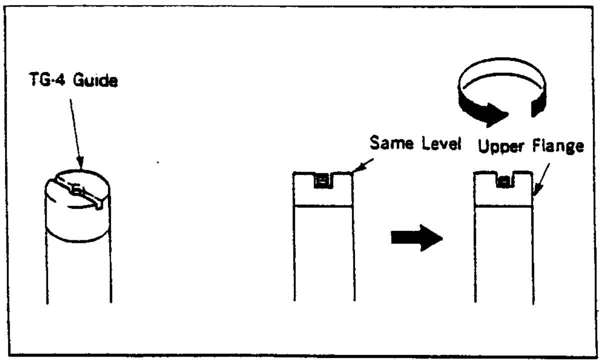


Fig. 53

No. 4 Guide (TG-4) Adjustment

1) Play back the tracking alignment tape.
2) In the FWD mode, check that the tape runs along a TG-4 lower flange. When there is a clearance, turn TG-4 counter-clockwise to put the tape along the TG-4 lower flange. turning angle must be within 180°.
When this is done, check that a tracking waveform (Fig. 54) is not changed.
When a tracking waveform inlet is downward as shown in Fig. 55, make tracking adjustment at the inlet side by raising a height of TG-4.

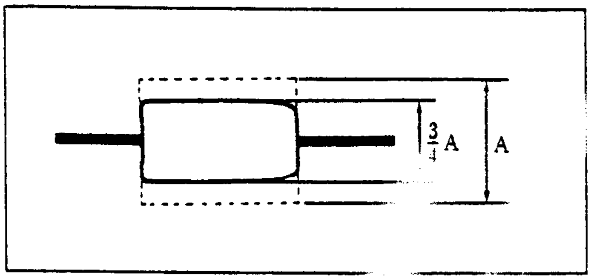


Fig. 54

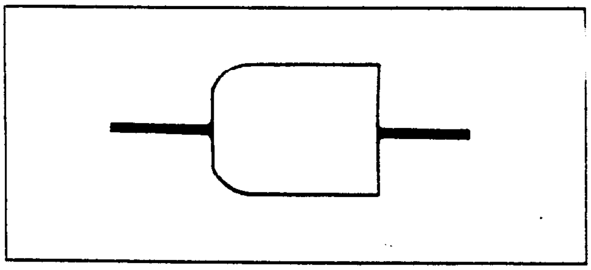


Fig. 55

Tape Path Adjustment for "Guide Rai 1 with TG4 Gate Adjustment" (Fig. 56)

After adjusting an inlet, when the TG-4 lo ge is curled in the REV mode, turn the TG-4 gate a g screw at pitches of 45° to the left to remove a curl. (ck screw is attached to the TG-4 gate adjusting screw. First, loosen the lock screw a little, and then, turn the gate adjusting screw. After adjustment, tighten the lock screw.)

If the TG-4 gate adjusting screw is turned to the left too much, the TG-2 upper flange (arrow-indicated part in the figure above) is greatly curled. If it happens, turn the screw to the right.

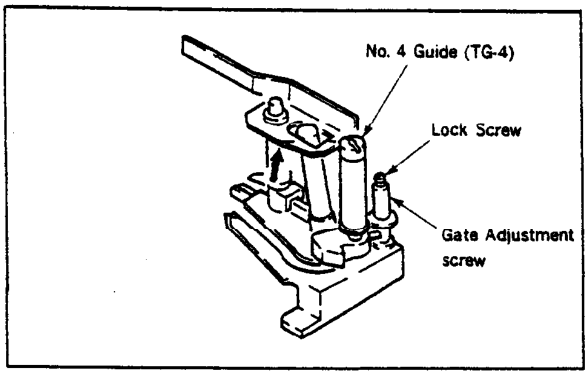


Fig. 56

4-4 NO. 11 GUIDE (TG-11) ADJUSTMENT

1) In the PLAY BACK mode, check that it has no deflection between the capstan and No. 11 guide (TG-11).
   (Criterion: 0.5mm or less)
   when the tape is deflected, turn the No. 11 guide (TG-11) to remove its deflection. (Fig. 57)
2) Select the REV mode and check the RF waveform at the outlet side. (Fig. 58)
3) If the waveform is defective, turn the TG-11 nut counterclockwise by 90° and recheck 2), 3) and 4).
4) Apply screw lock to the No. 11 guide (TG-11).

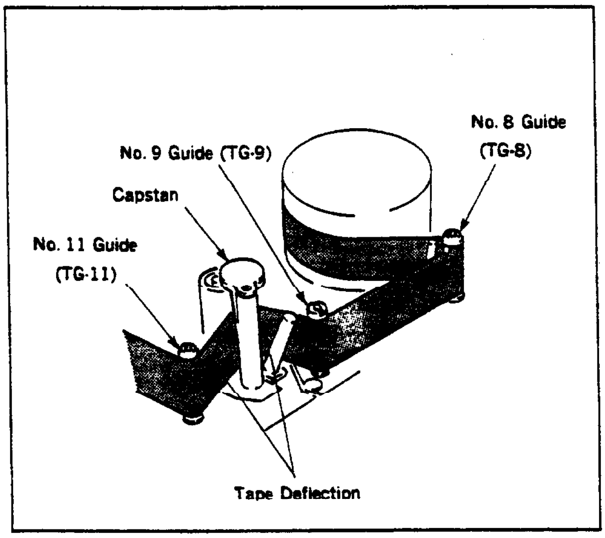

No. 8 Guide
(TG-8)
No. 9 Guide (TG-9)
Capstan
No. 11 Guide
(TG-11)
Tape Deflection

Fig. 57

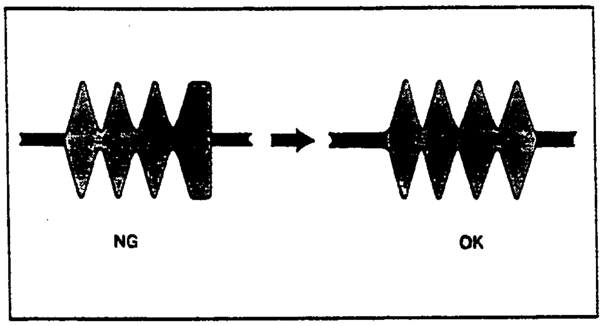


Fig. 58

4-5 CHECK AFTER ADJUSTMENT

1. Tracking Check

1) Play back the tracking alignment tape. In the PATH mode, shift a track. (Fig. 59)
2) At this time, check that a minimum amplitude value (E_{MIN}) is 67% or more of a maximum amplitude value (E_{MAX}). (Fig. 60)
3) Make sure that the waveform does not fluctuate greatly. (Fig. 61)

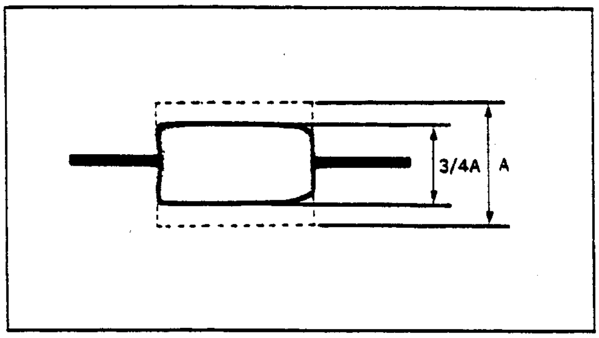
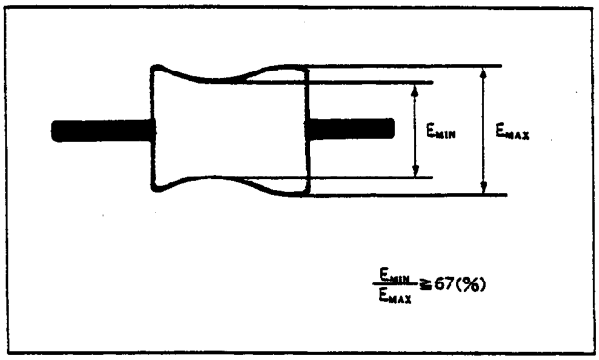
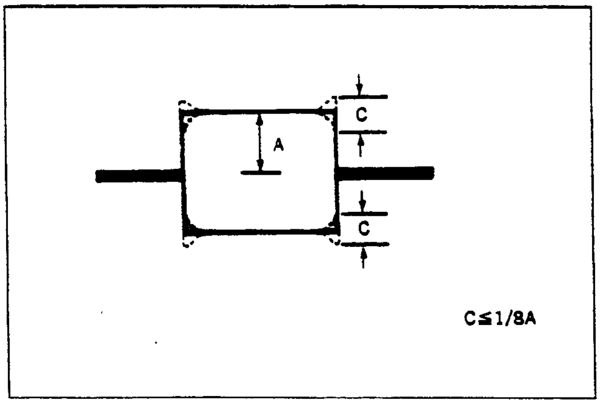


Fig. 59



$\frac{E_{MIN}}{E_{MAX}} \geq 67(\%)$

Fig. 60



C≦1/8A

Fig. 61

2. CUE, REV Check

1) Play back the tracking alignment tape and select the REV mode. At this time, waveform peak pitches must be unform. (Fig. 62 ⓐ) When they not uniform, make tracking adjustment in 4-2 and No. 11 guide (TG-11) adjustment in 4-4.
2) Select the CUE mode. At this time waveform peak pitches must be uniform. (Fig. 62 ⓑ) When not uniform, make tracking adjustment in 4-2.

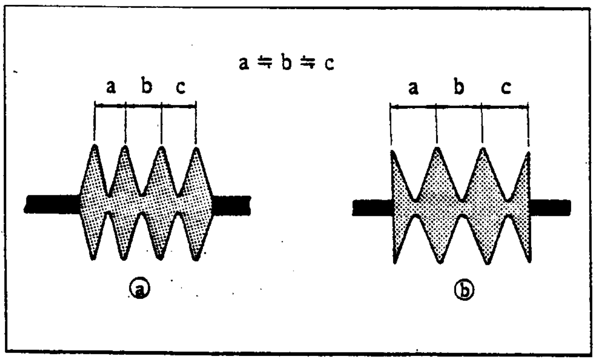


Fig. 62

3. Rise Check

1) Play back the tracking alignment tape.
2) In the PLAY BACK mode, check that the RF waveform rises horizontally within one second. At this time, check also that the tape is not deflected around the pinch roller. (Fig. 63)
3) Play back the tape after CUE/REV and FF/REW operation and check that the RF waveform rises horizontally within one second. At thistime, check also that the tape is not deflected around the pinch roller.
4) Repeat the checks in 2) and 3).

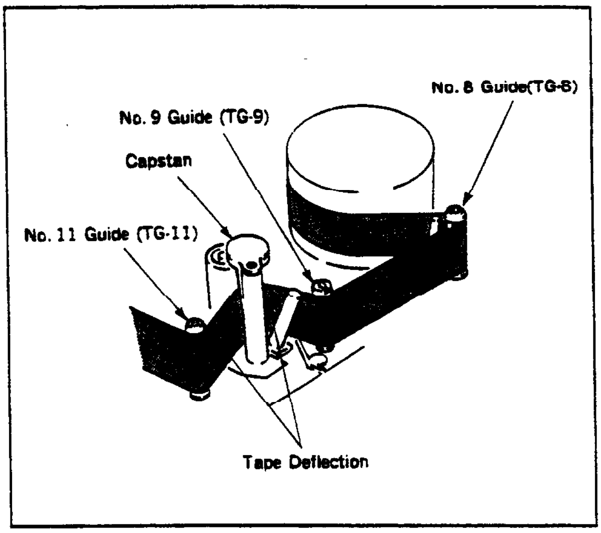

No. 8 Guide(TG-8)
No. 9 Guide (TG-9)
Capstan
No. 11 Guide (TG-11)
Tape Deflection

Fig. 63

4. Tape Running Check

In the CUE and REV modes, check that the TG-2 upper and lower flanges, TG-4 lower flange, TG-5 upper flange, TG-8 upper flange and TG-11 upper and lower flanges are not culed greatly. (Fig. 63)

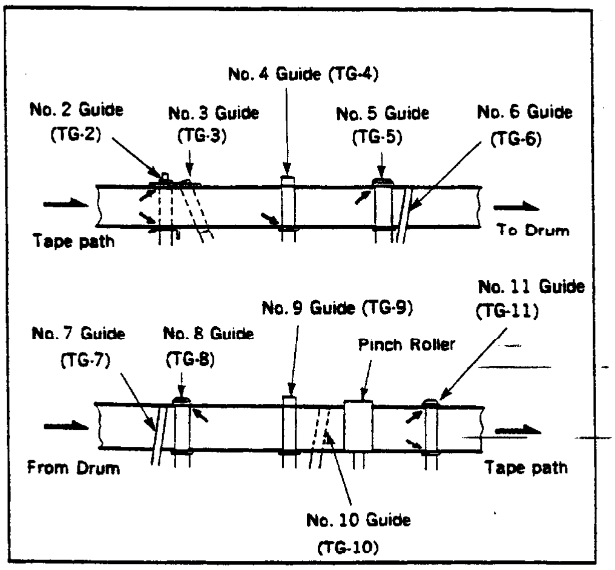

No. 4 Guide (TG-4)
No. 2 Guide (TG-2)
No. 3 Guide (TG-3)
No. 5 Guide (TG-5)
No. 6 Guide (TG-6)
Tape path
To Drum
No. 11 Guide (TG-11)
No. 9 Guide (TG-9)
No. 7 Guide (TG-7)
No. 8 Guide (TG-8)
Pinch Roller
From Drum
Tape path
No. 10 Guide (TG-10)

Fig. 64